Managing Risk

UNDERSTANDING INCOME FLUCTUATIONS

Jerry White
Applied Economics & Management, Cornell University

Farming is an inherently risky business, whether you are growing grapes, tree fruits, small fruits, vegetables, ornamentals, or any other crop. But there are steps you can – and should -- take to protect your business from the occasional really bad year, in which receipts are so low that the survival of the business is threatened. In this newsletter I look at the issue of income fluctuation, and why the goal of risk management is to stabilize, not maximize, income.

This is a timely topic, because early indications are that severe freeze damage to vineyards this spring in western New York may mean that some grape growers will get only one or two tons per acre from the 2002 crop. Of course it's too late to buy insurance for this crop year (signup for perennial crops is in mid-November) but such a season is a graphic reminder of the role of crop insurance and other risk management measures.

To examine income fluctuations over a longer term, I'll use the example of grape growers in the Lake Erie Region. These growers have been affected by a variety of events over the past two decades, beginning with the collapse of prices in the mid 1980s. This resulted in cash prices for some growers that were under $150 per ton, while average costs of production were closer to $280 per ton. The factors which produced this price crash included a surplus of grape production both in the US and world-wide; changes in the demand for wine grapes (reducing demand for those varieties that were the staple of the NY industry); and an increase in the value of the dollar that led to a dramatic increase in imports into the U.S. market.

Table 1. Average receipts per acre, price per ton, and yield per acre, Lake Erie Grape Farm Cost Survey, 1991 – 2000.

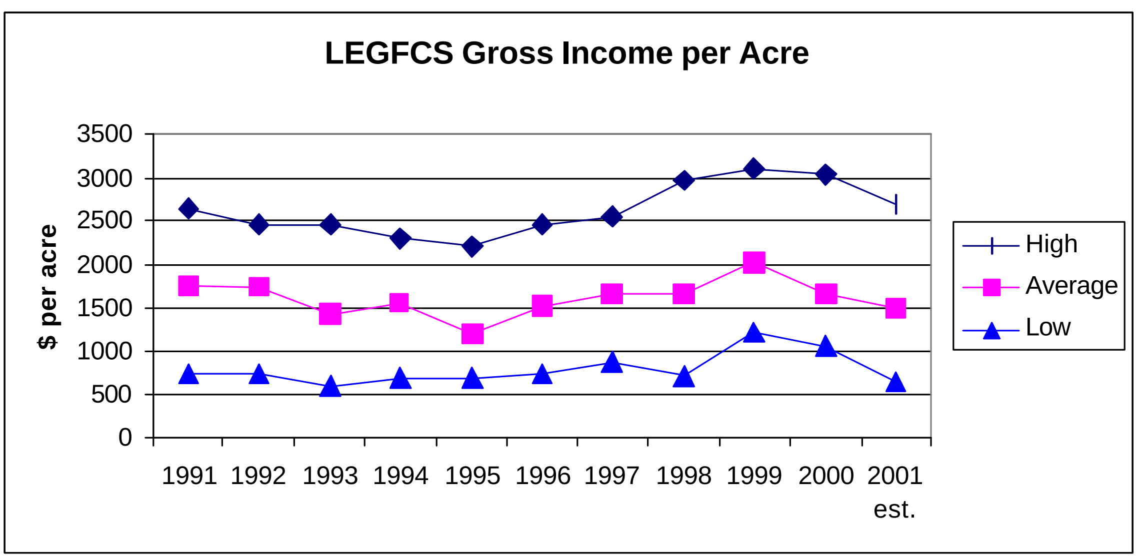
	10-Year Low	10-Year High	10-Year Average
Average gross receipts per acre ($)	1,189	2,026	1,614
Average price per ton ($)	203	338	254
Average yield (T/Ac)	4.8	8.3	6.5

Table 1 shows the variability in average gross receipts per acre, average price per ton, and average yield per acre, among Lake Erie grape growers between 1991 and 2000. Average yield was as low as 4.8 tons per acre in 1993 and as high as 8.3 tons per acre in 1999. Average price varied from 203 per ton to as high as $338 per ton. Average gross receipts per acre varied from $1,189 in 1995, a year of low yields and low prices, to as much as $2,026 per acre in 1999 with a very large crop and favorable prices. Grape growers need about $1,500 to break even on total costs, and when income falls as low as $1,189, some farms will be unable to cover even cash costs.

This situation illustrates the importance of taking measures to stabilize gross receipts. Crop and/or revenue insurance is designed to protect against this situation. If you do not have insurance and you are unable to cover costs in a bad year, your options include: (1) using up savings, which reduces your net worth; (2) borrowing more money, which increases your debt-to-asset ratio; and (3) subsidizing the loss with off-farm income. For those with extremely high debt-to-asset ratios, the options include bankruptcy and or voluntary foreclosure, or sale of the farm. (But be aware that in the case of sale of the farm or some assets, there is often a sizable income tax liability. Consult your accountant or tax advisor before exercising this option!)

Figure 1 shows the variability in gross income per acre between 1991 and 2001 for all grape farms in the sample. It shows both variations between growers in the region (high, low and average) and between years. In 1995, a particularly low year, gross income per acre was less than 60 percent of what it was in 1999, the highest year, and less than 75 percent of the 10 year average. Figure 1 also indicates the highest and lowest individual farm for each year. For example in 1993, one farm in the sample had gross income of only $600 per acre, which may very well have been below cash outlays for that crop year.

Figure 1. Gross income per acre among Lake Erie grape growers.
Lake Erie Grape Farm Cost Survey, 1991 – 2000



Keep in mind that the year-to-year variability on a single farm will be even greater than the variability shown by a group of farms. Use trend analysis to understand how your own farm’s income fluctuates, and how likely it is to dip below a critical level. Analyzing these data for the most recent 10 years will enable you to make better decisions regarding crop insurance and other strategies for dealing with low -income years.

Some degree of fluctuation in gross income occurs in every kind of horticultural enterprise. Remember that risk management is all about reducing these fluctuations, not necessarily increasing profits! Most risk management tools have a cost associated with them. The goal is to ensure that you can meet your financial obligations, both business and personal, even in a bad year.

For more information on income fluctuations, **click here.**