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Risk Management for Citrus - An Overview[1]

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Introduction

In an increasingly competitive world, management is becoming more important to business success. Citrus production, like all agricultural enterprises, has many risks. Risk is the possibility that an outcome or event will not meet expectations. Highly variable income from year to year is one indication of risk. A few examples of specific risks include fruit yield less than expected, price not meeting expectations, or tree loss from insect or disease injury. Most growers are aware of risks but are unaware of the concept of risk management as a part of overall business management. On the positive side, risk involves the chance of gain as well as loss. Negative consequences are referred to as downside risk; positive consequences as upside risk (Patrick, 1992; Fleisher, 1990). Risk Management is the systematic application of management policies, procedures, and practices to the tasks of identifying, analyzing, assessing, treating, and monitoring risk (Hardaker et al., 1997).

In a statewide survey of citrus managers (Stricker et al., 2000) 90 percent of managers reported that their greatest source of risk was unstable fruit prices, followed by loss of trees/reduced yield from insects and disease (85%) and loss of fruit from adverse weather (84%). Increased cost of inputs such as fertilizer, pest control, machinery, and labor was considered to be an important risk by 80 percent of the managers, and 78% said that foreign competition was important. Eighty-four percent (84%) of managers agreed that there is more risk in citrus production today than ten years ago.

Citrus growers may reduce risks or shift some of their risk to others, at a price. The price may include the premium on an insurance policy, taking the time to keep up to date on government regulations, or the added cost of operating groves in different geographical areas. The six steps in risk management are setting goals for the business, knowing your personal risk tolerance, knowing the risk bearing capacity of the business, identifying sources of risk, estimating the probability of an adverse event, and using appropriate risk management tools.

Setting Goals

Setting business goals, as well as personal and family goals, is critical for risk management decisions. Surprisingly, only 12 percent of citrus growers reported having written goals for their

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business. Setting goals requires time and thought. A number of goals may be identified, some short term and others long term. In addition, most people will have family, business, and personal goals. Some goals will be in competition with other goals, while others may be complementary. Goal setting is a dynamic process. Once a goal is reached, new goals may become important. Goal priority may change over time. Also, a person may have unrealistic goals which, if not revised, may be a source of frustration and stress (Patrick, 1992). Examples of some goals might include increasing the size of the business by purchasing or planting additional grove land, increasing net income by a certain percent by increasing production or reducing costs, or setting aside a sum of money for the children's education or for retirement. Goals should be written, reasonable, and measurable. They should be attainable in the manager's lifetime and should be shared with others involved in the business (Baquet et al., 1997).

Risk Tolerance

Individuals vary greatly in their tolerance for risk. They may be classified into four categories: “risk avoiders,” “risk takers,” “adventurers,” and “calculators” (Patrick, 1992).

- “*Avoiders*” are the most cautious risk takers. They expect the worse to happen and do not take the slightest risk that they can avoid. Unfortunately, they lose by missing opportunities to profit. Farmers who are avoiders typically do not prosper; they barely manage to survive.

- “*Risk Takers*” are plungers who close their eyes to risk, ignore facts, and go ahead. Risk Takers usually do not get involved in farming. They commonly fail because they refuse to take precautions.

- “*Adventurers*” are people who enjoy taking risks. Risks are challenging and exciting to them. Some Adventurers enjoy the excitement of taking risks, but keep the stakes at reasonable levels. Many growers may fall into this category with regard to their marketing activities. As long as financial survival is not threatened, they may enjoy the adventure of playing the market. Many speculators are included in this group.

- “*Calculators*” understand that they must take some chances to get ahead, but recognize that there is some risk in every situation. Before making a decision or taking action they collect information and figure the odds. They try to be realistic, recognize the risks, and try to reduce risks to acceptable levels. Eighty-nine percent (89%) of citrus growers identified themselves in this category.

Risk-Bearing Capacity of the Business

Risk-bearing capacity is directly related to the solvency and liquidity of the business (Patrick, 1992). The stronger the financial position of the business, the better the business is able to handle risk. Risk-bearing capacity is also related to cash flow. Cash flow needs are obligations for cash costs, taxes, loan repayment, and family living expenses that must be met each year. The higher these obligations as a percent of cash flow, the less able the business is to assume risk. Other factors which impact the risk bearing capacity of the business include age of the owner/manager, form of business organization (corporation, partnership, or sole proprietorship), size and diversity of the business, location, and the amount of income from other sources.

Sources of Risk

Risk may be broken down into five categories: Production, Market, Financial, Legal, and Human Resource (Baquet et al., 1997). While this classification is convenient, there are many interrelationships among the various categories (Table 1).

- *Production risk* is the potential loss in crop yield from a wide variety of sources including freezes, hurricanes, tornadoes, hail, flood, drought, insects, diseases, genetics, and quality of inputs. Fire and theft are also sources of production risk.

- *Market risk* deals with both purchased inputs and sale of farm products. It involves price fluctuations due to weather, foreign competition, government action, changing consumer preferences, production cycles, and over or under production of farm commodities. Inflation in the

general economy can drive up the cost of inputs without a corresponding increase in value of agricultural products.

- *Financial risk* includes the cost and availability of debt capital, the ability to meet cash flow needs in a timely manner, and the ability to maintain and grow equity. Financial risk can involve casualty losses, falling land prices, technological advances that make current investments obsolete, and the potential loss of the farm to pay estate taxes. The ultimate financial risk is the risk of bankruptcy.

- *Legal risk* commonly associated with agriculture includes appropriate business structure, tax and estate planning, contractual arrangements, tort liability, and statutory compliance including environmental and labor issues.

- *Human resource risk* involves human resources, which are both a source of risk and an important part of the strategy for dealing with risk. The core of dealing with human resource risk and the potential for solving human resource problems is managing people. The inability to find enough qualified workers is becoming a serious problem in the Florida citrus industry. In addition, human resource calamities such as divorce, chronic illness, and accidental death can hamper the most carefully made risk management decisions. Risk management should anticipate the likelihood of human resource calamities. Carelessness by growers or farm workers driving vehicles and using machinery can also cause significant losses.

Probability of an Adverse Event

Probability is a number that measures the likelihood or chance that a particular event will occur, and can be stated as a percentage (Nelson, 1977). For example, the probability that the sun will come up tomorrow is 100 percent, while the probability that there will be a damaging freeze this winter is 10 percent or less. Probabilities are based on the chance that a future event will occur. In estimating probabilities, managers should examine their own experience and available data because not all adverse events are equally likely. The probability of hurricane damage to the grove is not the same as the probability that fruit prices will meet expectations. Identifying sources of risk and estimating the probability that an adverse event will occur will help the manager decide which risk management strategies or tools are appropriate for his individual situation.

Risk Management Tools

A number of risk management tools are available to help minimize the adverse consequences of unanticipated negative events. Risk management tools fall into three broad categories: self protection (preventive maintenance, diversification, spreading sales), self-insurance (cash reserves, credit reserve capacity, knowledge of regulations), and purchased insurance (casualty insurance, crop insurance, liability insurance, market hedges, options). The decision to use one or more tools will be based on a number of factors including personal, business and family goals, manager's risk tolerance, and the ability of the business to bear risk. Some specific tools include:

- Tools to help mitigate *Production risk* include diversification by growing more than one variety of fruit, utilizing more than one rootstock, having groves located in more than one geographical area, producing both fresh and processed fruit, and purchasing crop insurance for both fruit and trees. Irrigation is a risk management tool to reduce production losses due to drought and, in many cases, loss due to freeze damage.

- To deal with *market risk* develop budgets to determine break-even prices for fruit. The break-even price should serve as an important reference, even though it is usually not the desired price. Marketing tools include forward contracts, selling through a pool or participation program, hedging, options, and spreading sales over time. By purchasing (or contracting for) production inputs in advance, one can often negotiate to reduce the cost.

- A good set of financial records are needed to maintain financial control of the business. Records provide much of the information needed to understand critical *financial risk*. Essential

financial statements include the balance sheet and statement of owner's equity, income statements, and projected and actual cash flows. These records give a history of the business and provide data needed to calculate financial performance measures. Other tools for financial risk are to maintain casualty insurance on property and to maintain a cash/credit reserve for unforeseen financial needs. Keep up to date with new technologies to minimize the possibility that new investments are prematurely obsolete.

- *Legal risk* involves examining the legal structure of the business to see if assets other than business assets are exposed to liability. Secure competent advice on tax planning to ensure that tax laws are being followed and that only the required amount of taxes are being paid. Have an estate plan that passes business assets according to the wishes of the owner and does not jeopardize the continuity of the business because of excessive or unplanned estate taxes. When entering into any contractual agreement, either oral or written, be concerned about what happens if a disagreement should arise. Maintain liability insurance which also covers pollution claims and environmental damage. Liability policies do not cover all risks. Know what risks are not covered and decide if it is important to close those insurance gaps. Maintain adequate compliance records for labor laws and use of pesticides and keep up to date on government regulations.

- *Human resource risk* management (personnel management aspect) can be viewed as a process. The process can best be described as seven functions: job analysis and job descriptions, hiring, orientation and training, employer/employee interaction, performance appraisal, compensation, and discipline. Also, anticipate the likelihood of human resource calamities, and develop a plan such as providing for backup management and having an estate plan. Carry adequate insurance including medical insurance, long-term health care insurance, and life insurance.

The decision to use one or more risk management tools depends on each individual manager's personal and business situation. It is important to be aware of risks and consciously evaluate potential impacts of different risks on the success of the business.

Conclusion

Growers differ greatly in the level of risk they can tolerate, depending on overall debt-to-equity situation and degree of diversification. One large loss or two or three successive smaller losses could bankrupt a highly specialized grower with a high ratio of debts to equity. A grower in this situation would want to make full use of risk management tools such as forward sales, option contracts, crop insurance, hazard insurance, irrigation, etc. to assure some minimum level of return. On the other hand, a grower with substantial financial reserves, or other sources of income, may choose to carry greater risks in hopes of achieving higher income in the long run. However, even the more financially secure grower may want to use some risk management tools such as growing different varieties of fruit, maintaining property insurance, and using forward contracts or options to expand profit opportunities, while controlling risks.

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Table 1. Examples of Risks and Risk Management Tools/Strategies In Citrus

Production Risk

- Disperse the operation georgraphically
- Maintain resource reserves
- Purchase crop insurance
- Maintain irrigation system/drought & freeze protection
- Freeze protection
- Grow more than one variety of fruit
- Use more than one rootstock
- Grow both fresh and processed fruit
- Keep up to date on pest control strategies

Market Risk

- Determine break-even price for fruit
- Sell by forward contract
- Use hedging and options
- Sell through co-ops or pools
- Maintain selling flexibility
- Spread sales over time
- Forward price produciton inputs

Legal Risk

- Have appropriate business structure
- Practice tax and estate planning
- Meet contractual obligations
- Maintain good pesticide records
- Maintain good labor records
- Keep informed of new regulations

Financial Risk

- Maintain a credit reserve
- Hold a safe solvency position
- Use Limited Partnership to limit risk to assets
- Keep and use good financial records
- Develop an estate plan
- Maintain property insurance
- Maintain liability Insurance
- Develop and use cash flow projections

Human Resource Risk

- Have good personnel management program
- Keep informed of labor regulations
- Plan for human resource calamaties
- Plan for back-up management
- Maintain health insurance program
- Plan for transfer of assets to next generation