



## RISK MANAGEMENT

# RISK OVERVIEW

By Dr. Laurence M. Crane, NCIS

*This is the first article in a series of six that provide an overview of agricultural risk management.*

Farmers and ranchers make decisions in a risky environment every day. The consequences of their decisions are generally not known when the decisions are made. Furthermore, the outcome may be better or worse than expected. Variability of prices and yields is the biggest source of risk in agriculture. Technology changes, legal and social concerns, and the human factor itself also contributes to the risk environment for agriculture producers. The two situations that most concern agriculture producers are: 1) is there a high probability of adverse consequences, and 2) would those adverse consequences significantly disrupt the business?

## BASIC ECONOMIC PRINCIPLES

There is a return to every factor of production—land, labor, capital, and management. These returns may be either positive or negative, depending upon the use to which they are put. One of the returns to management is the ability to successfully manage risk. Risk is what makes it possible to make a profit. If there was no risk, there would be no return to the ability to successfully manage it. That is to say, there is a risk-return trade-off. This means that anytime there is an opportunity for loss (risk), there is also an opportunity for profit. Because of uncertainty, profits are never certain. Farmers must decide between different alternatives with various levels of risk. Those alternatives with minimum risk may generate too little profit. Those alternatives with high risk will likely generate the greatest return but may be more risky than the farm can stand or the farmer wishes to bear. The preferred and optimum choice must balance potential for profit against risk of loss. It all comes down to management, and there are no easy answers.

## STEPS TO RISK MANAGEMENT

### Risk Identification

The process for managing risk is really very straightforward. First you need to identify and classify the risks you face. There is no correct way to do this, but it seems easier

*Risk can be defined as the chance of loss or an unfavorable outcome associated with an action. Uncertainty is not knowing what will happen in the future. The greater the uncertainty, the greater the risk.*

*The most important role for a farmer is that of manager. For an individual farmer (manager), risk management involves finding the preferred combination of activities with uncertain outcomes and varying levels of expected returns.*

*Risk Management can then be defined as choosing among alternatives to reduce the effects of risk.*

if they are classified along the lines of what you do. The main areas of farm management are production, marketing, and financing, thus it seems reasonable to categorize risks in these areas. There are other areas of risk such as managing human resources, coping with government change, and complying with environmental regulation.

### Production Risk

Agricultural production implies an expected outcome or yield. Variability in outcomes from those that are

expected poses risks to your ability to achieve financial goals. Any production related activity or event that is uncertain is a production risk. The major sources of production risks are weather, pests, diseases, and the interaction of technology with other farm and management characteristics, genetics, machinery efficiency, and the quality of inputs. Fire, wind, theft, and other casualties are also sources of production risk.

## Marketing Risk

Marketing is that part of your business that transforms production activities into financial success. Unanticipated forces, such as weather or government action, can lead to dramatic changes in crop and livestock prices. As agriculture moves towards a more global market, these forces stem increasingly from world factors. Other farmers' weather and other governments can affect your prices. When these forces are understood, they can become important considerations for the skilled marketer.

Marketing risk is any marketing related activity or event that is uncertain leading to the variability and unpredictability of prices that farmers both receive for their products, and pay for production inputs.

## Financial Risk

Financial risk covers those risks that threaten the financial health of the farm business and has three basic components: 1) the cost and availability of debt capital; 2) the ability to meet cash flow needs in a timely manner; and, 3) the ability to maintain and grow equity. Cash flows are especially important because of the variety of ongoing farm obligations, such as cash input costs, cash lease payments, tax payments, debt repayment, and family living expenses.

## Human Resource Risk

Human resources are both a source of risk and an important part of the strategy for dealing with risk. At the core of dealing with that risk, and that potential, is the ability to manage people.

Human resource calamities can hamper even the most carefully made and appropriate risk management decisions. Those calamities include divorce, chronic illness, and accidental death.

## Legal Risk

Many of the day-to-day activities of farmers and ranchers involve commitments that have legal implications. Understanding these issues can lead to better risk management decisions.

Legal issues cut across other risk areas. For example, acquiring an operating loan has legal implications if not repaid in the specified manner. Production activities involving the use of pesticides have legal implications if appropriate safety precautions are not taken. Marketing of agricultural products involves contract law. Human resource issues associated with agriculture also have legal implications, ranging from employer/employee rules and regulations, to inheritance laws. The legal issues most commonly associated with agriculture fall into four broad categories: 1) appropriate legal business structure, and tax and estate planning; 2) contractual arrangements; 3) tort liability, and, 4) statutory compliance, including environmental issues.

## Risk Measurement

Probabilities are simply a way of expressing the chances of various outcomes. Weather forecasts use probabil-

ities. For example, they may indicate a 20 percent chance of rain or a 40 percent chance of snow. At the start of a football game, a coin is flipped. What are the chances or probabilities that it will come up "heads?" Fifty percent, or one half. The chances for "tails" are exactly the same.

Variability of outcomes is generally associated with risk, and typically riskier situations have greater variability of outcomes. The average outcome is the most frequent or most likely if outcomes are normally distributed, but the average does not provide information about variability. The range—the highest and lowest values—combined with the average does provide some information about variability. However, it is difficult to make comparisons of variability between crops or prices.

## Risk Capacity

Risk management strategies are also affected by an individual's capacity or ability to bear (or to take) risk. Simply stated, risk bearing capacity is directly related to the solvency and liquidity of one's financial position.

Risk bearing ability is also affected by cash flow requirements. Cash flow requirements are the obligations for cash costs, taxes, loan repayment, and family living expenses that must be met each year. The higher these obligations as a percentage of total cash flow, the less able the farm business is to assume risk. The best source of historical production and marketing information is (or should be) the farm records maintained for the farm business. The records may be supplemented and complemented by off-farm information, forecasts, and predictions. But there is no substitute for farm record data.

## Risk Willingness (Preference)

Risk averse farmers are the most cautious risk takers, but they do take some risks. They lose because they miss economic opportunities to profit.

Risk neutral farmers understand they must take some chances to get ahead, but recognize that there are degrees of risk in every situation. Before making a decision or taking action they gather information and analyze the odds. They try to be realistic, recognize the risks, and try to reduce risks to acceptable levels.

Risk lovers are individuals who enjoy risks as challenging and exciting and look for the chance to take risks. Many farmers may be in this category with respect to their marketing plans. As long as financial survival is not at stake, they may enjoy the adventure of playing the market. Many speculators are in this category. Some close their eyes to risk, ignore facts, and go ahead, and commonly fail because they refuse to take precautions.

## Set Risk Goals

A meaningful goal is specific, measurable, challenging but realistic, time specific, written, and is performance based. If one achieves all conditions of a specific measurable goal, confidence increases and satisfaction results. If a measurable goal is consistently missed, objective analysis can occur and

adjustments can be made to improve the likelihood of success.

It is important to set performance, not outcome goals. Care should be taken to set goals over areas where one has as much control as possible. Nothing is as discouraging and counterproductive to goal setting as failing to achieve a goal for reasons beyond your control. If goals are set on performance or skills to be acquired, then control over achievement is maintained.

## Identify Tools

Because of the multiple sources of risk, comprehensive strategies that integrate several responses to variability are often necessary for effective risk management. The particular combination used by an individual farmer will depend on the individual's circumstances, type of risks faced, and risk attitudes. Some risk responses act primarily to reduce the chance that an adverse event will occur, while other responses have the effect of providing protection against adverse consequences should the unfavorable event occur. Farmers find many different ways to implement these principal risk responses.

## Select Professional Assistance

Even though risk management is sometimes challenging, there are

many professional resources available and no farmer should feel isolated. Extension educators are expected to provide the educational programs and leadership to help all those who desire to learn. Others are available and well qualified to help, depending upon the specific need.

Use common sense in selecting professional help and ask for references and credentials as appropriate. Rely on the experience of other farmers and/or trusted friends/clergy in seeking recommendations of who to use.

## REFERENCES

There are numerous sources of outstanding materials on all aspects of farm risk management. Contact your local Cooperative Extension office for assistance and direction.

The Risk Management Education website maintained by the University of Minnesota is an excellent starting point. The University of Minnesota developed and maintains this website with the support from USDA-CSREES and USDA-RMA. This vast and current library of information can be accessed at: [www.agrisk.umn.edu](http://www.agrisk.umn.edu). **TODAY**



# RISK OVERVIEW