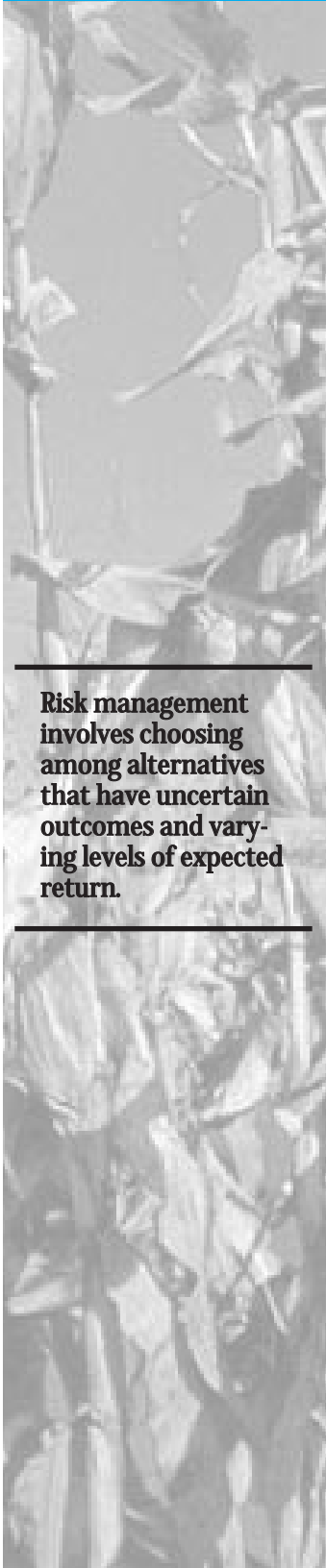


What Is Risk?



Risk management involves choosing among alternatives that have uncertain outcomes and varying levels of expected return.

Risk is the possibility of adversity or loss, and refers to “uncertainty that matters.” Consequently, risk management involves choosing among alternatives to reduce the effects of risk. It typically requires the evaluation of tradeoffs between changes in risk, expected returns, entrepreneurial freedom, and other variables. Understanding risk is a starting point to help producers make good management choices in situations where adversity and loss are possibilities.

Risk is uncertainty that affects an individual’s welfare, and is often associated with adversity and loss (Bodie and Merton). Risk is uncertainty that “matters,” and may involve the probability of losing money, possible harm to human health, repercussions that affect resources (irrigation, credit), and other types of events that affect a person’s welfare. Uncertainty (a situation in which a person does not know for sure what will happen) is necessary for risk to occur, but uncertainty need not lead to a risky situation.

For an individual farmer, risk management involves finding the preferred combination of activities with uncertain outcomes and varying levels of expected return. One might say that risk management involves choosing among alternatives for reducing the effects of risk on a farm, and in so doing, affecting the farm’s welfare position. Some risk management strategies (such as diversification) reduce risk within the farm’s operation, others (such as production contracting) transfer risk outside the farm, and still others (such as maintaining liquid assets) build the farm’s capacity to bear risk. Risk management typically requires the evaluation of tradeoffs between changes in risk, expected returns, entrepreneurial freedom, and other vari-

ables. The following examples illustrate risk management in farming and the types of tradeoffs faced by farmers:

- *Enterprise Diversification*—Consider Farmer Smith, who is debating the most appropriate enterprise mix on his operation. In particular, Smith is contemplating switching 200 acres from corn to soybeans within his existing operation of corn, hay, and dairy. By adding this new crop, Smith is less at risk that the farm will generate low revenue because, in his location, income from soybeans is less variable than income from corn, and because individual commodity returns do not move exactly in tandem (they are less than perfectly correlated). Smith must consider this risk reduction against the expected net returns associated with the new enterprise, weighing any potential decline in net returns against the lower income variability that he believes will be provided by such an additional crop.
- *Crop Insurance*—Consider Farmer Jones, who farms where the potential for drought is a constant worry and yield variability is high. Jones can purchase insurance to cover a large portion of the potential loss, or can self-insure and absorb any

losses caused by low yields. In investigating the purchase of crop insurance, he finds that the annual premium is quite high due to the significant yield variability in his area. As a result, Farmer Jones must consider the risk-return tradeoffs in deciding whether or not to purchase insurance and, if he decides to buy insurance, the level of coverage that best suits his risk management needs.

- *Production Contracting*—Consider Farmer Johnson, who is considering whether to enter into a production contract with a large broiler integrator. The integrator retains control over the chicks as they are raised by the producer, and prescribes specific feeds, other inputs, and special management practices throughout the production cycle. In return for handing over management decisions, the producer's income risk is greatly reduced, market access is guaranteed, and access to capital is ensured. Johnson must weigh these potential benefits against his reduced entrepreneurial freedom and the risk of contract termination on short notice.

As can be seen through these illustrations, managing risk in agriculture does not necessarily involve avoiding risk, but instead, involves finding the best available combination of risk and return given a person's capacity to withstand a wide range of outcomes (Hardaker, Huirne, and Anderson). Effective risk management involves anticipating outcomes and planning a strategy in advance given the likelihood and consequences of events, not just reacting to those events after they occur. That is, the four main aspects of risk management involve (1) identifying potentially risky events, (2) anticipating the likelihood of possible outcomes and their consequences, (3) taking

actions to obtain a preferred combination of risk and expected return, and (4) restoring (if necessary) the firm's capacity to implement future risk-planning strategies when distress conditions have passed (Hardaker, Huirne, and Anderson; Patrick; Barry).

Because farmers vary in their attitudes toward risk and their ability to address risky situations, risk management cannot be viewed within a "one size fits all" approach. That is, it is not wise to say that "All midwestern corn farmers should hedge 50 percent of their crop in futures," or that "No farmer should plan to obtain more than two-thirds of his or her income from a single commodity." Different farmers confront different situations and structural characteristics, and as explained in this report, their preferences toward risk and their risk-return tradeoffs have a major effect on decision-making in each given situation. A large, industrialized operation, for example, may hire marketing expertise to directly use hedging and options, while a small family farm may prefer to forward contract with other parties better able to hedge directly.

Understanding risk in farming is important for two reasons. First, most producers are averse to risk when faced with risky outcomes. Someone who is risk averse is willing to accept a lower average return for lower uncertainty, with the tradeoff depending on the person's level of risk aversion. This means that strategies cannot be evaluated solely in terms of average or expected return, but that risk must also be considered. Second, identifying sources of uncertainty helps farmers and others address the most important strategies for mitigating risk, and aids in circumventing extreme outcomes, such as bankruptcy.

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