

Agriculture Risk Management

Workbook

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Colorado State University
Extension

Property of: _____

Purpose of Workbook

This workbook is designed to provide a framework for developing a risk management plan for your agricultural business. Each step contains explanations, examples and worksheets for you to begin developing your risk management plan. There are numerous resources pertaining to managing risk in agriculture; it is the hope of the authors that this document will put you on your way to making good risk management decisions to meet your business goals.

About the Authors

Rod Sharp and Jeff Tranel, authors of “Agriculture Risk Management Workbook” are Agriculture and Business Management Economists with Colorado State University. They have appointments with Colorado State University Extension and faculty affiliation with the Department of Agricultural and Resource Economics. Rod and Jeff have extensive experience working with farm and ranch families throughout Colorado as well as national and global audiences.

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Risk Overview

RISK: The probability of an event occurring that can impact your:

Current Profit Level

Financial Situation (equity position)

Satisfaction and Well-Being

RISK: A chance of loss or an unfavorable outcome.

The uncertainty of not knowing what will happen in the future.

The greater the uncertainty, the greater the risk.

Risk is what makes it possible to make a profit.

Minimum risk = minimum profits (minimum losses)

High risk = higher profit potential (higher losses)

Risk Management

Risk Management Involves

finding the **preferred combination of activities**
with **uncertain outcomes** and
varying levels of **expected returns**.

**The consequences of these decisions
are not known when the decisions are made.**

What is the probability of adverse consequences?

- No products to sell.
- Loss of markets.
- Market prices below breakeven.
- Disruption of the business.
- Limited or no access to credit (borrowed funds).
- Increased interest rates.
- Reneging on contracts and other agreements.
- Liability
- Preventing attainment of business and personal goals.
- Family strife.
- Bankruptcy.
- Costs and availability of labor.
- Injuries to employees and workers.

Agricultural Risk Management

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Ability or Capacity to Bear Risk

Liquidity — the ability of a business to meet short-term obligations.

Symptoms of a Liquidity Problem:

- Increasing carryover operating debt
- Selling productive assets to help pay bills
- Bills are not being paid on time

Measuring Liquidity (Current Ratio):

- Current Ratio Calculation
 - $\text{Current Farm Assets} \div \text{Current Farm Liabilities}$
 - Numbers are found on the Balance Sheet

Solvency — the ability of a business to have enough value of assets to cover its liabilities.

Symptoms of a Solvency Problem:

- Business has a difficult time withstanding any adversity
- Bank is reluctant to renew a loan
- Foreclosure and bankruptcy

Measuring Solvency (Debt to Asset Ratio):

- Debt to Asset Ratio Calculation
 - $\text{Total Farm Liabilities} \div \text{Total Farm Assets}$
 - Numbers are found on the Balance Sheet

Step 3: Consider your Ability or Capacity to Bear Risk

- Describe the financial position of your business in terms of **liquidity**.
 - Discuss your liquid assets, cash reserves and how you use operating loans.
 - Calculate your current ratio for each of the past three years:

	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
<i>Your Current Ratio</i>			
<i>My Capacity to Bear Risk is (poor, medium, good)</i>			

	<i>Low Risk</i>	<i>Medium Risk</i>	<i>High Risk</i>
<i>Liquidity Benchmarks</i>	>1.5	1.0-1.5	<1.0

- Describe the financial position of your business in terms of **solvency**.
 - Discuss your total assets and total liabilities.
 - Calculate your debt to asset ratio for each of the past three years:

	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
<i>Your Debt to Asset Ratio</i>			
<i>My Capacity to Bear Risk is (poor, medium, good)</i>			

	<i>Low Risk</i>	<i>Medium Risk</i>	<i>High Risk</i>
<i>Solvency Benchmarks</i>	<30%	30-70%	>70%

Risk Preferences of Operators and Managers

- **Risk Adverse or Risk Avoiders**

- Cautious individuals
- Prefer less risky sources of income/investment
- Willing to sacrifice some income to reduce the probability of low incomes or losses.

- **Risk Preferrers or Risk Takers**

- More adventuresome individuals
- Prefer more risky business alternatives
- Willing to accept some probability of lower income or losses for the opportunity of higher income.

- **Risk Neutral**

- Individuals between risk adverse and risk preferring.
- They choose the decision with the highest expected return.

Step 4: Consider the Risk Preferences of Operators and Managers.

Risk Tolerance Quiz: Please answer each question as honestly as possible. Remember there are no right or wrong responses. Then add up the points for your risk tolerance score.

- 1. In general, how would your best friend describe you as a risk taker?**
 - a. A real gambler (4 points).
 - b. Willing to take risks after completing adequate research (3 points).
 - c. Cautious (2 points).
 - d. A real risk avoider (1 point).

- 2. You are on a TV game show and can choose one of the following. Which would you take?**
 - a. \$1,000 in cash (1 point).
 - b. A 50% chance in winning \$5,000 (2 points).
 - c. A 25% chance in winning \$10,000 (3 points).
 - d. A 5% chance in winning \$100,000 (4 points).

- 3. You have just finished saving for a once-in-a-lifetime vacation. Three weeks before you plan to leave, your business experiences a severe financial set back. You would:**
 - a. Cancel the vacation (1 point).
 - b. Take a much more modest vacation (2 points).
 - c. Go as scheduled, reasoning that you deserve the trip (3 points).
 - d. Extend your vacation, because this might be your last chance to take such a vacation (4 points).

- 4. If you unexpectedly received \$20,000 to invest, what would you do?**
 - a. Deposit it in a bank account, money market, or an insured CD (1 point).
 - b. Invest it in safe, high-quality bonds or bond mutual funds (2 points).
 - c. Invest in land or livestock (3 points).

- 5. When you think of the word “risk” which of the following words comes to mind first?**
 - a. Loss (1 point).
 - b. Uncertainty (2 points).
 - c. Opportunity (3 points).
 - d. Thrill (4 points).

6. Given the best and worst case returns of the four choices below, which would you prefer?
- \$200 gain best case; \$0 gain/loss worst case (1 point).
 - \$800 gain best case; \$200 loss worst case ((2 points).
 - \$2,600 gain best case; \$800 loss worst case (3 points).
 - \$4,800 gain best case; \$2,400 loss worst case (4 points).
7. You are asked to choose between:
- A sure gain of \$500 (1 point).
 - A 50% chance to gain \$1,000 and a \$50% chance to gain nothing (3 points).
8. Suppose a relative left you an inheritance of \$100,000, stipulating that you invest ALL the money in one of the following choices. Which one would you select?
- A “low risk, low potential return” money market account (1 point).
 - A “moderate risk, moderate potential return” mutual fund (2 points).
 - A portfolio of “high risk, high potential return” common stocks (3 points).
 - A “very high risk, very high potential return” commodity investment (4 points).
9. Your trusted friend and neighbor is putting together a group of investors to fund an exploratory gold mining venture. The venture could pay back 50 to 100 times the investment if successful. If the mine is a bust, the entire investment is worthless. Your friend estimates the chance of success is 20%. If you had the money, how much would you invest?
- Nothing (1 point).
 - \$5,000 (2 points).
 - \$15,000 (3 points).
 - \$60,000 (4 points).

Your Score	Risk Tolerance

Key	Risk Tolerance
0-12	Low tolerance for risk
13-15	Below average tolerance for risk
16-18	Average/moderate tolerance for risk
19-21	Above average tolerance for risk
22-31	High tolerance for risk

Goals and Objectives

An old adage States, “If you don’t know where you are going, any road will get you there.”

Setting goals are one means of describing what you want the future to look like.

Well defined goals can:

- ✓ Help owners and managers focus energy and efforts.**
- ✓ Provide a basis for making business and family decisions.**
- ✓ Provide a means for measuring progress.**

Step 5: Write “SMART” Risk Goals. (Specific, Measurable, Attainable, Relevant, and Time Bound)

Goals and Objectives

- Describe your goals.
 - Use clear statements of where you want to be after a period of time (short-term, intermediate term, and long-term).
 - Goals should be **SMART** (Specific, Measurable, Achievable, Relevant, and Time Bound).
- Goals Examples:
 - *Generate net farm income (profit) of at least \$63,000 every year.*
 - *Reduce operating costs or increase revenues by \$50 per cow by 2013.*
 - *Increase weaning percentage by 2 percent this year (without increasing costs).*
 - *Cut family living expenses by \$100 per month.*
 - *Reduce debt by \$40,000 over the next 5 years.*
 - *Save \$4,000 a year for retirement.*
 - *Prepare a succession plan that is agreeable to all interested parties by the end of the year.*
- Set clear objectives (the required actions to achieve your goals).
 - Prioritize your actions and activities.
 - Identify any additional resources required to accomplish your objectives.
- Your Goals and Objectives:

Risk Management Tools Strategies

- **Diversification**
 - Enterprise selection, market timing, geographic locations, business structures, investments, etc.
- **Vaccination programs**
 - Prevention of herd health problems
- **Forward pricing inputs and/or products and services**
 - Reduce market price risk (forward contracts, futures, options, etc.)
- **Purchase insurance policies**
 - USDA/RMA provides a variety of subsidized insurance policies to manage risks in agriculture.
- **Storage/retained ownership**
 - Marketing strategy for diversifying timing of sales.
- **Life and health insurance**
 - Tools for reducing human risks due to death and illness.
- **Legacy/succession plans**
 - Plan for ensuring efficient transfer of management and ownership of the business.
- **Off-farm employment**
 - Farmer and/or family members have skills to generate off-farm income.
- **Select low-risk enterprises and/or production practices**
 - Reduces variations in returns from year to year.
- **Renting or leasing assets (land, equipment, livestock, etc.)**
 - Avoid financial risk with loans
 - May provide more flexibility to make adjustments to changing conditions.

Step 6: Identify Risk Management Tools and Strategies to Help Manage Priority Risks.

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Step 6: Identify Risk Management Tools and Strategies to Help Manage Priority Risks.

Priority Risks (Identified in Step 2)	Risk Management Strategies and Tools	
	Selected Risk Management Alternative(s) (required resources, communication, contingency plans)	Implementation of Plan (roles and responsibilities)