The SRMP Small Business Edition

Specifically designed to help non-commercial and lifestyle operations create and customize a personal risk management plan

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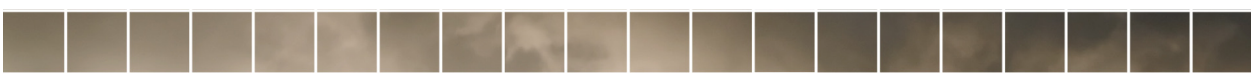
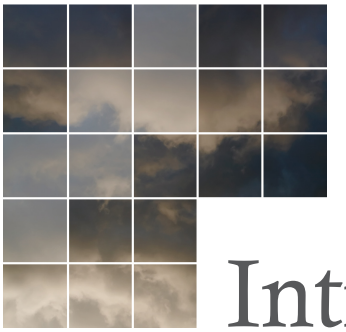
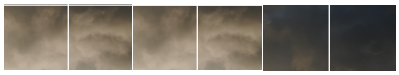
Strategic Risk Management

Note: Major portions of this document have been taken from The Strategic Risk Management Process, authored by D. Hoag, D. Griffith, J. Hewlett, J. Parsons, J. Pritchett, and A. Sprague.





Introduction



Did you grow up on a farm or ranch? Perhaps you did, but it took you a few years to return to your roots. Or maybe you are living your dream of raising natural beef or growing peaches to bring in a little extra income. Whatever your business, no matter how large or small your operation, you are affected by price changes, operating costs, and unforeseeable events. Whether your operation survives (or even thrives) from these changes comes down to how well you anticipate their occurrence. In other words, the success of your business greatly depends upon how well you plan for and manage risk.

What Is Risk?

Taking a risk means taking an action, like buying stocker steers or deciding to apply a pesticide, where there is some uncertainty. Every business decision that farmers and ranchers make, such as figuring out the amount of grass available for spring calving, the price of corn at harvest, or whether it will rain tomorrow, involves uncertainty. But not all uncertainties require risks.

Farmers and ranchers often can determine the chance or probability that something will occur. For example, weather reports reveal the probability of rain. The difference between risk and uncertainty is that risk involves an action that makes a person vulnerable to the consequences of future uncertainty. A producer may be uncertain as to whether or not it will hail this summer, but this alone is not risk. If the producer plants a crop, she is taking an action exposing her to the uncertainty of a hail storm or other harmful weather conditions. Therefore, the act of planting her crop makes the farmer vulnerable to risk.

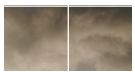
"Everything Sweetened by Risk" (Alexander Smith)

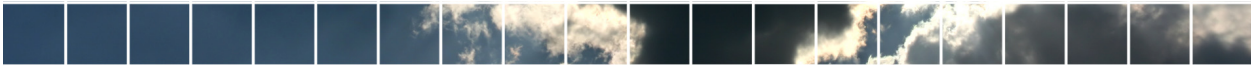
When it comes to risk management, comfort levels may vary. Research has shown that when people are comfortable with risk, they have the potential to reap greater rewards than those who embrace risk much less often. However, people who are "risk neutral" or "risk averse" may not suffer as great of a loss as those who like to take on risk.

Inside these pages you will learn more about the level of risk that works for you, and what this might mean for your business and your bottom line. The ten-step Strategic Risk Management Process (SRMP) can be used to identify, plan for, and manage risk in your business operation. Each step of the way, you will receive a practical set of tools to help your business, regardless of whether the operation is large or small and whether or not your product is specialized.

There is no right or wrong when it comes to risk strategy—the most important aspect of this program is to help you to identify and understand what level of risk works for you and your operation. Strategic risk management is designed to protect your investment and your lifestyle by knowing what level of risk is right for you.

Risk is like love; we all know what it is, but we don't know how to define it."
Joseph Stiglitz





Strategic Planning for Risk: The SRMP

Not surprisingly, every individual approaches risk differently. Some producers like to take risks (making large equipment purchases, for example) because it affords them scheduling flexibility and the opportunity for a higher yield. In contrast, other producers prefer a sense of security. These folks would prefer not to make a large financial commitment until they are certain the prices they earn for their crop will justify the equipment investment.

The Strategic Risk Management Process (SRMP) is a systematic method to help identify, plan for, and manage risk. The process was derived from traditional strategic planning methods and adapted specifically for agricultural risk management. The beauty of the SRMP is that it can be customized and used for any agricultural producer, regardless of the size and tenure of the operation. The SRMP takes into consideration potential resources available to producers, including management experience, risk preferences, family involvement, and the long-term goals of the operation. It is also helpful for most small business decisions, like selling organic beef on the Internet, running a vineyard, or growing and selling popcorn.

The SRMP is divided into three basic phases: strategic, tactical, and operational. These phases lead the producer through a systematic, sequential planning process by dividing the three phases into ten operational steps (Diagram 1). Because the risk management process requires continuous evaluation, the three management phases and the ten-step process are combined into a circular flow diagram. Producers must learn to modify their actions as market information and other conditions change. Certain information, such as crop planting, crop harvesting, and weather reports, may require the producer to update his strategic plan.

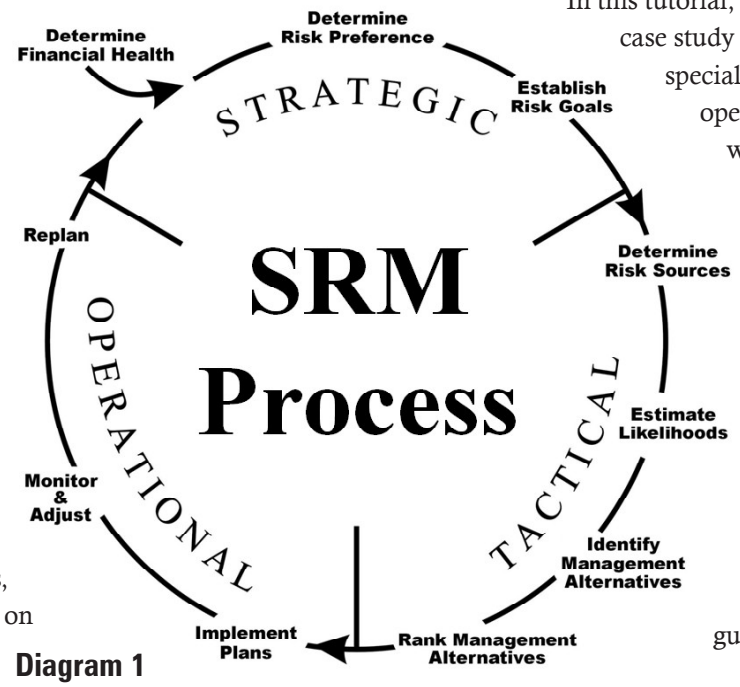
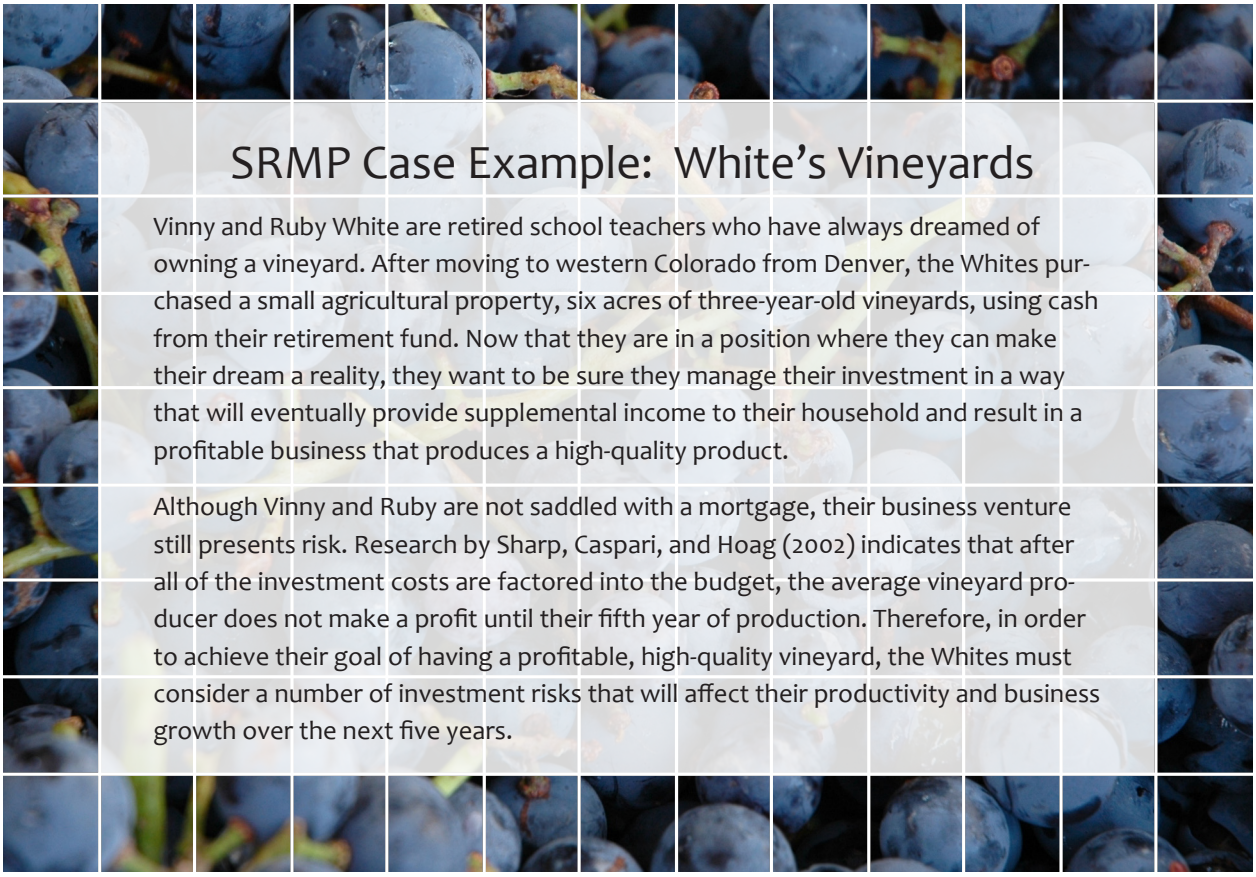


Diagram 1

In this tutorial, you'll find an SRMP case study of wine grapes, a specialty crop. Using actual operational numbers, we guide you through each phase and step of the strategic planning process so that you can see how individual situations affect the operation's capacity for risk. In addition, we provide you with specific tools to guide you through the

process. (Tools for each of the ten steps are presented at the end of the chapters, and more information can be found at our website: www.RightRisk.org.)

Each tool provides you an opportunity to learn more about your own risk preferences and your current strategic planning process. Regardless of the size of your operation, consider how our vineyard resembles your own situation. In some chapters, there are blanks for you to write in your business information and perform your own preliminary business risk management plan. Although we hope you will find this exercise helpful, there is still much more you can learn about risk management. At the end of this booklet, you will have an opportunity to attend a government-supported extension program to help tailor your own strategic management plan.



SRMP Case Example: White's Vineyards

Vinny and Ruby White are retired school teachers who have always dreamed of owning a vineyard. After moving to western Colorado from Denver, the Whites purchased a small agricultural property, six acres of three-year-old vineyards, using cash from their retirement fund. Now that they are in a position where they can make their dream a reality, they want to be sure they manage their investment in a way that will eventually provide supplemental income to their household and result in a profitable business that produces a high-quality product.

Although Vinny and Ruby are not saddled with a mortgage, their business venture still presents risk. Research by Sharp, Caspari, and Hoag (2002) indicates that after all of the investment costs are factored into the budget, the average vineyard producer does not make a profit until their fifth year of production. Therefore, in order to achieve their goal of having a profitable, high-quality vineyard, the Whites must consider a number of investment risks that will affect their productivity and business growth over the next five years.

Determining Your Financial Health

If you are like most agricultural producers, you embrace the hard work associated with farming and ranching. You find satisfaction in producing a good product, and you appreciate the agricultural lifestyle. Although becoming a millionaire probably isn't one of your life-long goals, having a financially sound business should be. The first step in the SRMP is to assess the financial health of your operation. You wouldn't consider participating in a grueling athletic event, like running a marathon or playing tackle football, without knowing whether or not your body was in sound physical condition. Likewise, you should not knowingly take on risky financial investments without understanding your operation's financial health.

Financial health refers to the well-being of a business as measured by adequate financial analysis. Don't avoid this step of the risk management process because your operation is small or because your financial management isn't perfect. Typically, the financial analysis reveals that resources are in better shape in some areas and less so in others. For example, an operation might have a strong net worth but a weak cash flow. In general, healthy performance in each area of interest leads to a healthy business, one that is better able to withstand the changes in the economy and business environment. The process of strategic and tactical financial analysis found in the SRMP can identify weak links and help prevent financial disaster.

Much of the information for determining financial health can be found on the end of the year balance sheet and next year's cash flow projections. However, this information alone does not provide an adequate financial picture nor does it project the impact family structure has on the business' financial health. There are five areas of financial health that should be monitored by all agricultural businesses: liquidity, solvency, repayment capacity, profitability, and financial efficiency. To get an accurate measure of all areas of financial health, four financial statements are necessary: the balance sheet, a cash flow statement, an accrual adjusted income statement, and a statement of owner equity.

The information on the financial statements, as well as ratios and measures derived from these, is used to evaluate each of the five areas of financial health and, taken as a whole, the overall financial health of the business. Preparing and reconciling all four of the financial statements is absolutely necessary. Understanding the flow of information between the financial statements and the reconciliation process is a critical first step in knowing how to use the information for complete financial position and performance analysis and tactical financial planning.

Table 1 is a tool that can be used to determine your operation's financial health.

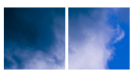
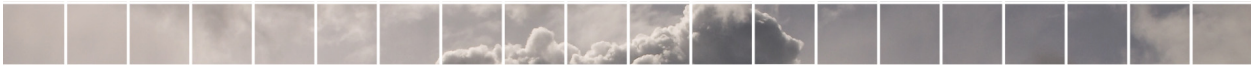
S T E P  1

Table 1

Column 1 **Balance Sheet**	Column 2 Cash Flow Statement	Column 3 Cash Basis Income Statement	Column 4 Accrual Adj. Income Statement
Assets:			
Current Assets: (CA)			
Checking & Savings	Beginning Cash Balance		
Supplies & Prepaid Expense			
Livestock Held For Sale	+Cash Inflows:	Income:	Income:
Crops Held For Sale	Cash Business Income	Cash Business Income	Cash Business Income
Feed Inventory			
Investment in Growing Crops			Current Asset Adjustments
Accounts Receivable	Other Inflows:		Crops Held for Sale
Gov. Payments Receivable	Gifts		Livestock Held for Sale
Marketable Securities	Inheritance		Hedging Accounts
Other Current Assets	Off-farm Inflows		Accounts Receivable
Total Current Assets (CA)	New Loan Proceeds		Government Payments
	+ Capital Asset Sales		
Long-term Assets: (LTA)			
Machinery			
Equipment			
Breeding Livestock			
Real Estate	Total Cash Inflows	Total Business Income	Total Business Income
Buildings & Improvements			
Other Long Term Asset			
Other Long Term Asset			
Total Long Term Assets (LTA)			
Total Assets = (CA + LTA)	- Cash Outflows:	Expenses:	Expenses:
Liabilities:	Cash Business Expenses	Cash Business Expenses	Cash Business Expenses
Current Liabilities: (CL)			
Accounts Payable	Other Cash Outflows		Current Asset Adjustments
Accrued Interest	Principle Payments		Supplies & Prepaid Exp.
Principal Due in 12 Mo.	Family Living (Draw)		Investment in Growing Crops
Personal Property Tax Due	Other Owner Draw		Crops Held for Feed
Real Estate Tax Due	Savings and Retirement		Current Liability Adjustments
Accrued Lease Payments			Accounts Payable
Accrued Payroll Tax			Short Tern Notes
Short Term Notes Payable			Accrued Interest
Other Current Liabilities			Accrued Taxes
Total Current Liabilities (CL)			Accrued Lease Payments
Long-term Liabilities: (LTL)		Depreciation Expense	Depreciation Expense
Machinery			
Equipment			
Breeding Livestock			
Real Estate	- Capital Asset Purchases	± Gain or Loss on Capital	± Gain or Loss on Capital
Buildings & Improvements	and Down Payments	Asset Sales	Asset Sales
Other Long Term Loans			
Other Long Term Loans			
Total Long Term Liabilities (LTL)			
Total Liabilities=(CL + LTL)	Total Cash Outflow	Total Business Expense	Total Business Expense
	Ending Cash Balance		
Net Worth	Cash Surplus or Deficit =	Cash Net Business Income =	Accrual Net Business Income=
= (Total Assets - Total Liabilities)	(Total Cash Inflows - Total Cash Outflows)	(Total Business Income - Total Expense)	(Total Business Income - Total Expense)



Finding Your Ability and Preference to Tolerate Risk

If you had a choice, would you take on more risk if it meant more profit or would you prefer to accept a lower profit if it meant less risk of a loss? How much profit are you willing to forgo to take on additional risk? The answers to these questions vary greatly between individuals. Some people avoid risks, while others crave it. In this step of the SRMP, you will gain a better understanding of your risk preferences.

Risk tolerance is defined as the amount of risk you are willing to undertake to achieve an investment goal. You can have three different attitudes towards risk:

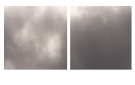
- Risk averse individuals highly dislike or fear risk. They would prefer a guaranteed payoff from their investment at the expense of receiving a lower rate of return.
- Risk neutral individuals care about the expected payoff of the investment and not the risk needed to achieve the operation's goals. Risk neutral investors neither actively seek risks nor pay to avoid them.
- Risk loving individuals actively seek risky investments that may potentially present high payoffs.

These risk concepts can be illustrated by a mathematical example known as an expected value.

Suppose you have just harvested your wheat. You have been offered $20,000 for the entire crop by your local elevator. This is income you can receive with certainty. You also have the option to store the wheat yourself and wait to see whether prices rise. You have calculated that if you store your wheat you have a 75 percent chance of the price rising in the spring, which will present to you a payoff of $26,000. There is also a 25 percent chance the price will fall, providing you with a revenue of only $10,000. The "expected value" of the self storage strategy is:
(0.75*$26,000) + (0.25*$10,000) = $22,000.

A risk averse individual would prefer to take the guaranteed $20,000. The self-storage option offers a risk premium of $2,000 to compensate for the 25 percent chance of the price falling. The question for each producer lies in how comfortable he or she is with the $2,000 risk premium. Would you take the risk for only $500 more? How about $4,000 more? A risk averse producer would need more risk premium than a more neutral producer.

Next, you'll find a brief investment risk tolerance quiz to give you insight as to whether you have tendencies toward risk averse, risk neutral, or risk loving behaviors. Understanding your risk preferences will prove to be useful as we guide you through the rest of the SRMP.

S T E P  2

Investment Risk Tolerance Quiz

1. In general, how would your best friend describe you as a risk taker?

   a. A real gambler
   b. Willing to take risks after completing adequate research
   c. Cautious
   d. A real risk avoider

2. You are on a TV game show and can choose one of the following. Which would you take?

   a. $1,000 in cash
   b. A 50% chance at winning $5,000
   c. A 25% chance at winning $10,000
   d. A 5% chance at winning $100,000

3. You have just finished saving for a "once-in-a lifetime" vacation. Three weeks before you plan to leave, you lose your job. You would:

   a. Cancel the vacation
   b. Take a much more modest vacation
   c. Go as scheduled, reasoning that you need the time to prepare for a job search
   d. Extend your vacation, because this might be your last chance to go first-class

4. If you unexpectedly received $20,000 to invest, what would you do?

   a. Deposit it in a bank account, money market account, or an insured CD
   b. Invest it in safe, high-quality bonds or bond mutual funds
   c. Invest it in stocks or stock mutual funds

5. In terms of experience, how comfortable are you investing in stocks or stock mutual funds?

   a. Not at all comfortable
   b. Somewhat comfortable
   c. Very comfortable

6. When you think of the word "risk" which of the following words comes to mind first?

   a. Loss
   b. Uncertainty
   c. Opportunity
   d. Thrill

7. Some experts are predicting prices of assets such as gold, jewels, collectibles, and real estate (hard assets) to increase in value. Bond prices may fall; however, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high-interest government bonds. What would you do?

   a. Hold the bonds
   b. Sell the bonds, put half the proceeds into money market, and put the other half into hard assets
   c. Sell the bonds and put the total proceeds into hard assets
   d. Sell the bonds, put all the money into hard assets, and borrow money to buy more

8. Given the best and worst case returns of the four investment choices below, which would you prefer?

   a. $200 gain best case; $0 gain/loss worst case
   b. $800 gain best case; $200 loss worst case
   c. $2,600 gain best case; $800 loss worst case
   d. $4,800 gain best case; $2,400 loss worst case

9. In addition to whatever you own, you have been given $1,000. You are now asked to choose between:

   a. A sure gain of $500
   b. A 50% chance to gain $1,000 and a 50% chance to gain nothing

10. In addition to whatever you own, you have been given $2,000. You are now asked to choose between:

    a. A sure loss of $500
    b. A 50% chance to lose $1,000 and a 50% chance to lose nothing

11. Suppose a relative left you an inheritance of $100,000, stipulating in the will that you invest ALL the money in ONE of the following choices. Which one would you select?

    a. A savings account or money market mutual fund
    b. A mutual fund that owns stocks and bonds
    c. A portfolio of 15 common stocks
    d. Commodities like gold, silver, and oil

12. If you had to invest $20,000, which of the following investment choices would you find most appealing?

    a. 60% in low-risk investments, 30% in medium-risk investments, 10% in high-risk investments
    b. 30% in low-risk investments, 40% in medium-risk investments, 30% in high-risk investments
    c. 10% in low-risk investments, 40% in medium-risk investments, 50% in high-risk investments

13. Your trusted friend and neighbor, an experienced geologist, 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 only 20%. If you had the money, how much would you invest?

    a. Nothing
    b. One month's salary
    c. Three month's salary
    d. Six month's salary

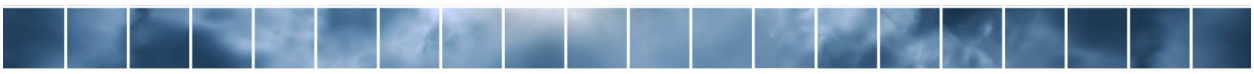
Add up your score, using the following key:

1. a=4; b=3; c=2; d=1
2. a=1; b=2; c=3; d=4
3. a=1; b=2; c=3; d=4
4. a=1; b=2; c=3
5. a=1; b=2; c=3
6. a=1; b=2; c=3; d=4
7. a=1; b=2; c=3; d=4
8. a=1; b=2; c=3; d=4
9. a=1; b=3
10. a=1; b=3
11. a=1; b=2; c=3; d=4
12. a=1; b=2; c=3
13. a=1; b=2; c=3; d=4

How does your risk tolerance compares to others?

Score	Risk Tolerance Level
0-18	Low tolerance for risk
19-22	Below-average tolerance for risk
23-28	Average/moderate tolerance for risk
29-32	Above average tolerance for risk
33-47	High tolerance for risk

Source: Grable, J. E., & Lytton, R. H. (1999). Financial risk tolerance revisited: The development of a risk assessment instrument. Financial Services Review, 8, 163-181.



Goal Setting for Strategic Risk Management

Regardless of the size of your agricultural operation, managing business risk is not easy. Eighty-hour work weeks, day-to-day busyness, and family dynamics make it tempting to delay goal setting in favor of necessary daily operational tasks. It is easy to succumb to the old adage, "If you don't know where you're going, any road will get you there." Having clear, well-defined goals can focus precious energy and effort, both of which are often at a premium in a family owned business.

Once you have determined your financial health and risk tolerance (Steps 1 and 2), it's time to set operational goals. When setting goals, the first step is to define the members of the management team, which should include all company stakeholders. Team members may be limited to the operator and spouse, although the management team might include children or extended family such as parents, uncles, brothers, sisters, and their respective spouses.

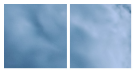
Because business and personal objectives are often closely tied together in agriculture, your risk management goals should be comprehensive and forward looking, both for the long term and short term. It is appropriate to outline your vision for the next ten to twenty years, but also to provide many short-term milestones along the way. Goals also may include the desired level of personal involvement in five years or a family's educational aspirations. Table 2 provides an example of the goal-setting process in the context of the White's Vineyards. As you will see, this process moves from a general, long-range vision to the tactical steps required to make the White's vision a reality.

Mission Statement

The mission statement describes the purpose of the operation and it provides a vision for the future. In other words, the mission statement describes the operation's long-term focus. It may seem to be abstract at first because some goals take time to materialize; however, the act of writing down the mission statement makes these goals more concrete. Developing strategic goals and tactical objectives helps to make the organizational mission more achievable.

Strategic Goals

Once the mission statement is established, the next step is to draft and to prioritize strategic goals. These are long-term goals broken down into smaller steps leading to the general goal(s) described in the mission statement. Simply put, the mission statement is your end destination, and strategic goals are the road map to get you there. Because resources are limited, these goals must be prioritized to fulfill the organizational mission. For example, the top strategic goal of White's Vineyards is to cultivate a product that can be bought and sold within five years of production.

S T E P  3

Goal Costs/Resources Available

After developing strategic goals, you must assess the resources available to fulfill your goals. In Table 2, we consider potential natural, human, financial, and capital resources. When evaluating resources, it is important to reflect on those that are available, but not necessarily committed, to the operation.

Tactical Objectives

Tactical objectives provide the framework for achieving specific strategic goals. They identify a sequence of events or accomplishments required to reach the longer term strategic goals. Tactical objectives generally describe how the strategic goals will be achieved and the order in which those events need to occur. They help outline what needs to be accomplished in the near term, as well as three to ten years down the line. In Table 2, the vineyard operator has set three tactical objectives that will help achieve the goal of "drinking wine from their own grapes within five years."

Operational Plans

Operational plans present the specific steps and the timetable required for accomplishing the tactical objectives each year. These plans typically include a list of the action steps, a timeline for completion, who is responsible for completion of each step, and some indicator to show the step has been completed. For the Whites, operational plans have been written for two of the specific tactical objectives (See Table 2).

In the interest of time, we have presented a basic guideline for setting strategic risk management goals. Ideally, you should develop your strategic goal worksheet with a great deal of thoughtfulness. The worksheet should be comprehensive and reflect the shared vision of all stakeholders involved. As a result, your operation's worksheet will likely comprise many pages with corresponding tactical objectives and operational plans for each objective.

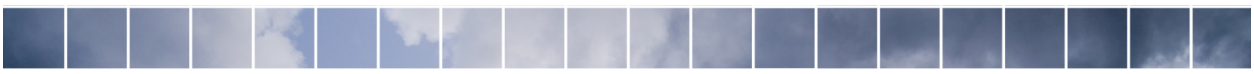


Table 2

MISSION STATEMENT FOR WHITE'S VINEYARDS:

To fulfill our lifelong dream of developing a profitable specialty crop business during my retirement, where we will produce the highest quality grapes in western Colorado.

WHITE'S VINEYARDS STRATEGIC GOAL WORKSHEET

Goal Statement: ***Produce high-quality grapes that can be sold for wine making within five years. That is, drink wine from our own grapes within five years!***

Deadline for Goal Attainment: ***Fall 2012***

---------- Goal Costs/ Resources Required: ----------

Natural Resources	Human Resources (Available, rather than hours worked)	Financial Resources	Capital Resources
+ Own 6 acres of 3-year-old vineyards	***+ Husband- 20 hrs.***	***+ Cash purchase of 6 acres of vineyards, using retirement savings (no mortgage!)***	***+ Adequate senior water rights***
+ Weather and soils conducive for grape growing (particularly for Riesling)	***+ Wife- 40 hrs.***	***+ No debt and able to borrow for equipment***	***+ Four-wheel drive pick-up truck***
	+ Adult children available for back-up help- 10 hrs. week		

Associated Tactical Objectives:

Tactical Objective 1-1: To beat the county average yield and price for wine grapes within 5 years.

Tactical Objective 1-2: Within 5 years, establish supply contracts with two local wineries for wine grapes.

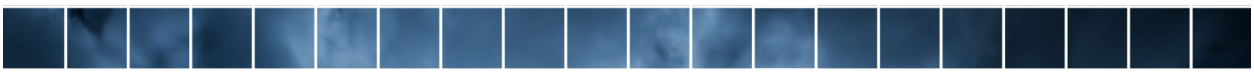
Tactical Objective 1-3: Recover investment costs, except for land, after 5 years and position vineyards to be able to purchase 2-3 more acres for vineyards in year 6.

Associated Operational Plans: ***(for Tactical Objective 1-3 only)***

Operational Plan 1-1.1: Consult with grape and wine experts to establish an annual growing and production schedule. Monitor progress quarterly and annually to meet targeted production schedule. Re-evaluate schedule each year.

Operational Plan 1-1.2: Purchase used tractor trailer at the end of the year, if annual production goals are attained.

Operational Plans 1-1.3 and 1-2.1: Develop a demand for the product by inviting select local wine producers to annual holiday season open house to view operation and sample the product.



Determine Risk Sources

Now that you have outlined your operation's goals, the next step is to determine the potential risks that may threaten your success. Most operational and agricultural risks fall into one of the following five categories:

Production Risk

Uncontrollable events such as weather, pests, or disease that make crop or livestock yields unpredictable.

Market or Price Risk

Output or input price changes resulting from domestic and international supply and demand relations. Changes typically occur after the producer commits to a production plan.

Financial Risk

Uncertainty associated with high variability of the production environment.

Institutional Risk

Unpredictable changes in policies and regulations (often governmental), which can effect the profitability of an agricultural operation.

Human Resource Risk

Risk introduced through unforeseen changes in the character, health, or behavior of people involved in the agricultural operation.

In Step 4 of the SRMP, producers identify and prioritize sources of risk by creating an operational road map. On the Risk Influence Worksheet (Table 3) the operator ranks each specific source of risk according to how much of an impact it has on a particular operation and according to how well a particular operation can influence that risk. First, the operator ranks the five risk categories on a scale of one to ten by how much each risk affects his business. These are the values listed in the "Risk" column. Then, the operator ranks how well he is able to influence the risk (whether it be to worsen or to alleviate) on a scale of one to ten. These are the values in the "Influence" column.

Using the Risk and the Influence values, the sources of risk are plotted on Diagram 2 to prioritize actions. Many operational risks are complex; this process enables the risks to be streamlined, prioritized, and managed in a systematic manner. Priority risks present a high amount of risk to the business and can be influenced by the operator. On the other hand, decisions that entail low risk and low influence are given lower priority. Through determining and prioritizing risks, the operation will create a type of road map for the rest of the tactical steps, allowing for efficient strategic risk management at the farm level.

In the case of White's Vineyards, there are several operational risks; however, three of the risks (interest on capital equipment, low initial yields, and hiring seasonal labor) can be highly influenced by the operator. Because hiring labor does not impose a high risk, the Whites will put more effort on timing capital purchases and getting good yields in the first three years.

S T E P  4

Table 3. Risk Influence Worksheet: List and Score Your Risks

	Risk Sources		Risk	Influence
Risk Type	**Examples**	**Your Risks**	1 to 10	1 to 10
Market/Price	1) Low prices 2) High input prices	1) Low prices for Colorado grapes 2) Stagnant demand for Colorado wine 3)	5 7	2 3
Production	3) Low yields, drought 4) Pest infestation 5) Hail	1) Low yields during first three years 2) 3)	7	6
Financial	6) Loan call	1) Anticipated interest rate increase and affect on capital expenditures 2) 3)	7	8
Institutional	7) GMO ban 8) Labor regulations	1) Change in approved wine labeling process 2) 3)	8	5
Human Resource	9) Family contract dispute	1) Hiring seasonal labor before the industry 2) 3)	3	9

List the risks you face above, then score each from 1 (low) to 10 (high) on how severe or common the risk is to you and on how able you are to influence it.

Plot each point on this graph. Address the risks with high scores on each scale.

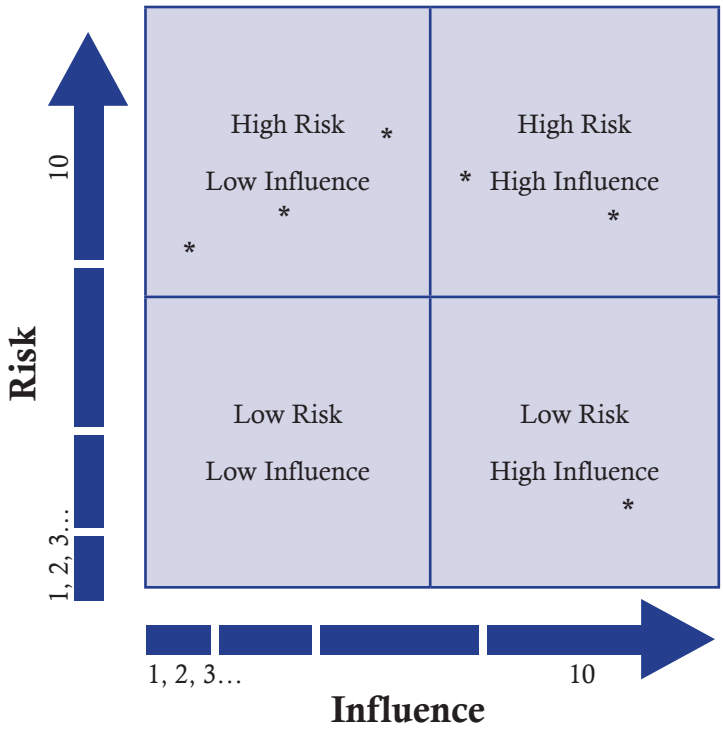


Diagram 2

Determine the Likelihood of Risk Outcomes

In any given situation, if you knew that a negative outcome would occur with absolute certainty, you would probably avoid taking a risk. For example, you wouldn't plant your crop if you knew for certain that it would be lost to a devastating drought or a tornado.

In Step 5, we calculate the probability of each possible outcome for every management action under consideration, so you can see which outcome is more—or less—likely to occur. Few people really understand probability enough to incorporate these principles into their operation, but the SRMP can help. The SRMP uses your historical data (or even just your judgment if the information is not available) to show the likelihood of an undesirable outcome. This is graphically presented to you in the form of a histogram, a probability density function or a cumulative density function. These figures are among the tools that can be used by the decision-maker to estimate the likelihood of an outcome occurring.

For example, the figure to the right shows a histogram of the probabilities associated with different grape prices. The probabilities form a familiar bell-shaped density function.

The likelihood of the price of grapes being $1,300/ton is 30 percent. This is three times more likely than the price being $1,000/ton, and three times as likely as being $2,000/ton, each of which present a likelihood of 10 percent. Understanding the probability of a risk outcome is critical to the decision-making process in order to make a better-informed decision as to how much risk you are willing to assume. Real-life probabilities do not usually behave as well as those presented in Figure 1. They are usually a lot more bumpy and asymmetrical. With the help of the SRMP, you can trace out the probabilities for your own crop yields, prices, and a number of associated risks.

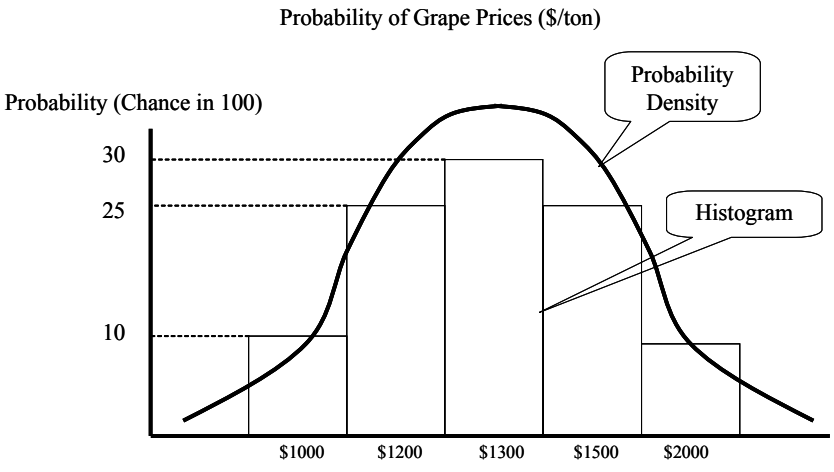


Figure 1

S T E P 5

Determining Your Probability

As part of the SRMP, we developed the following tool to help determine your own probability function. Enter the values in the fields below the graph that correspond to a 0, 20, 40, 60, 80, and 100 percent chance of occurrence. For example, the Whites might say there is no chance the price of grapes would fall below $500, and enter $500 in the "Value 1" slot. They might believe there is no chance of getting more than $2,500 for their crop, so they would enter $2,500 as "Value 6." If they speculated there is a 20 percent chance the value would be $1,100 or below, a 40 percent chance of getting at least $1,250, a 60 percent chance of getting $1,300, and an 80 percent chance the price would be at least $1,450, the values could all be filled in.

You can read the probability graph as is, but at the SRMP website, we will convert it into a probability function for you. (Note: This example would be the same as the probability function shown in Figure 1.)

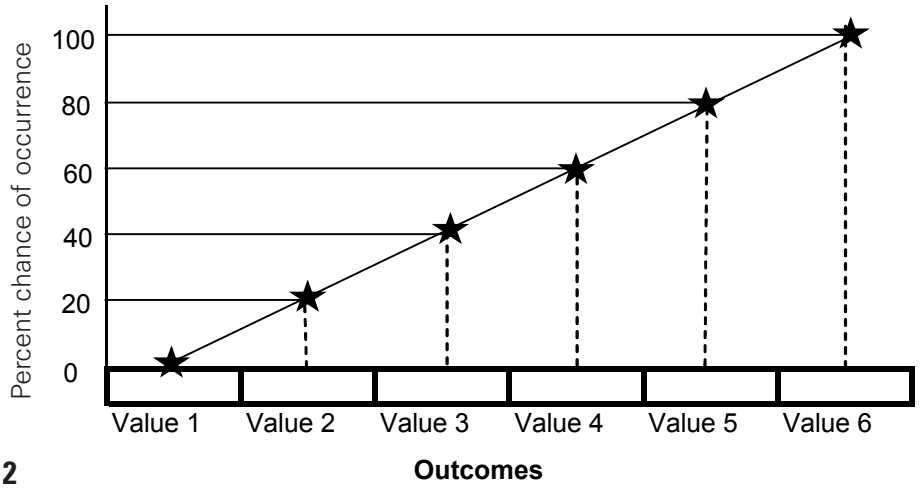


Figure 2

Identify Risk Management Alternatives

Once you have identified and prioritized your risks, you are ready to consider the four management options: avoid, transfer, assume, and reduce.

Some people try to avoid risk wherever possible. Metaphorically, people who hide money under their mattresses avoid the risks that stem from letting others hold their savings. While avoiding some risk is probably a good idea, extreme risk avoidance can have highly negative impacts and present significant losses to potential income. Putting your money under a mattress eliminates any earning potential and exposes you to the risk of fire or flood. If a producer forgoes crops like onions or potatoes, which present wild earning swings, in favor of crops like hay that net consistent profits, he is using a risk avoidance strategy.

Someone who does not like risk might want to transfer his or her risk to someone else. If there is an appropriate market to transfer the risk to, this is often a better option than risk avoidance. There are many formal modes for transferring risk, but one classic example is insurance, where risk is transferred from an individual to a corporation that can better tolerate the possible consequences. Because the insurance company pools its risks over many people and diversifies its holdings, the company remains solvent while it assumes responsibility for risks that may have devastating results for an individual. Another example of a risk transfer is the agricultural futures market. Producers swap risks with speculators by hedging and providing options. Due to the large size of the market, the risks are distributed across many people.

Those who do not mind dealing with risk may want to assume or retain their risk. Usually, there is a positive correlation between risk and return. People who take on more risks, though they have more ups and downs in their lives, make more money in the end. (That is, if the ups and downs don't put them out of business.) People who assume risks also can increase their access to capital to help bear the risks.

Of course, whether you wish to retain risk or avoid it, diversification will reduce risk. For example, instead of completely avoiding risky crops (or assuming the maximum risk that you can with the riskiest possible crop), you could grow both onions and wheat, which present volatile and stable prices, respectively.

In order to choose the right management alternative from these four options, you must consider how the average and the range of impacts can be affected by risk management practices. To understand this a bit better, consider Figure 3, which presents the likelihood of the Whites receiving a return on their investment. The solid line shows the average gross income per acre that the Whites can expect for their grape production. The average value is $5,000; however, the

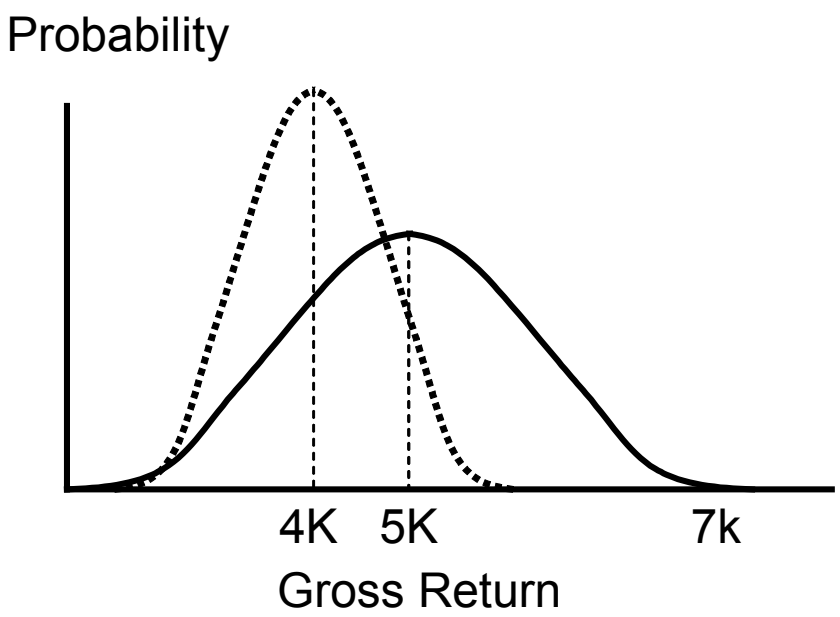


Figure 3

spread for gross income can range anywhere from zero to $7,000. Selecting any of the management options can affect spread or the average. For example, the Whites might select to forward price with a local winery, which transfers risk. By looking at the dotted line, we can see the spread is reduced, and the Whites are more certain to pull a profit. Average income level is reduced from $5,000 to $4,000, however, and the Whites have basically sacrificed $1,000 to increase this certainty.

Table 4

Management	Strategy	Risk Spread	Average
Avoid Risk	Grow table grapes instead of wine grapes	Reduced by 50 percent	Reduced by 40 percent
Reduce Risk	Install sprinkler system to reduce yield risk	Reduced by 25 percent	Increased by 20 percent
Assume Risk	Sell grapes on cash market	No Impact	No impact
Transfer Risk	Forward price with local winery	Reduced by 60 percent (yield variability remains, even though prices are fixed)	Reduced by 10 percent

Ranking Your Management Alternatives

After you have established your strategy and tactics, it's time to determine a risk management plan. In this last stage of the process, the tactical steps are combined with the strategic steps to determine the best course of action for your operation. Your choice will depend on your tolerance for risk (Steps 1 and 2), your goals (Step 3), and your risk management alternatives (Steps 4, 5, and 6). How well each risk control method fits your operation will depend on your strategic resources, goals, and objectives, and your attitudes about risk taking.

Take, for example, the White's risk management alternatives presented in Table 4. One risk the Whites may face is the output of grapes per acre, which may be affected by climate, weather, and tenure of the vineyard. As a result, the Whites may experience three different levels of yields, each with a different level of probability:

- High output of 4 tons of grapes per acre (probability of 1/6)
- Medium output of 2.5 tons of grapes per acre (probability of 4/6 or 2/3)
- Low output of 1.5 tons of grapes per acre (probability of 1/6)

The Whites also may engage in three different management actions, each of which has the potential to earn them a different amount of revenue. For the sake of simplicity, we will assume that when the White's harvest output is high, everyone's harvest is high—this means that grapes are abundant and there may be an excess quantity of grapes on the market, or even left on the vine. In contrast, during a year where output is low, it is more likely that they will sell all their grapes.

If wine grapes happen to be scarce during that year (low output), the Whites have the potential to gain a higher price with a forward contract. In this situation, the contracting winery has an option but not an obligation to buy the grapes. The wine producers have secured an option to buy from the Whites so they are guaranteed some grapes that year. However, because they must give their contractor the first right of refusal on the grapes before putting the grapes on the market, the Whites may lose revenue under this option if the harvest is plentiful. A high price for grapes is $1,400 per ton.

The Whites could put the grapes on the market and try to sell them at the market price of $1,300 per ton. Or the Whites could hedge their risk with a contract to guarantee them a price of $1,100 per ton, which would ensure they sell all their grapes.

Using these yield and price values, we can determine the potential revenues the Whites may face (see Table 5). These potential revenues are calculated in the boxes reflecting the appropriate outputs, prices, and

percentage of the harvest sold, stemming from the respective actions. There is also a category called "expected value," which multiples the potential revenues by the probability of each of these revenues.

In this example, the best the Whites could do is to hedge their crop—the least risky strategy. If everyone has a plentiful harvest, they would be guaranteed to sell their entire crop and earn $26,400. If the yield was low and grapes were scare, however, they would be much better off with a forward contract that provides income of $12,600 (roughly $2,700 more than the hedging contract).

If the Whites have a neutral attitude toward risk, they would select the strategy with the best expected value and sell the grapes on the market for $17,880. But, if the Whites were very risk averse, they would try to minimize a bad outcome, a Maxi-min strategy. Under the Maxi-min strategy, the Whites would engage in a forward contract, which provides the most revenue when yields are low.

Table 5

The Payoff Matrix Exercise
Which "action" would you choose?

Grape Yields	Probability	Actions		
		Forward	Market	Hedge
High	1/6	$23,520	$24,960	$26,400
Normal	4/6	$16,800	$17,550	$16,500
Low	1/6	$12,600	$11,700	$9,900
Expected Value		$17,288	$17,880	$17,117
Maxi-min		$12,600	$11,700	$9,900

By presenting the results from different management alternatives, the SRMP helps you determine the level of risk that is right for you. As a general rule, agriculturalists are not willing to accept a loss in order to take on a risk. In one study, 33.6 percent of cotton and 36.8 percent of corn producers would not be willing to give up any average yield for a technology guaranteed to provide the same yield every year. Furthermore, 34.3 percent of farmers in that study were willing to accept a lower price to reduce risk.

The SRMP offers many tools to help adjust for uncertainty and to help you develop a farm management plan that is tailored for your preferred level of risk.

Operational Strategic Risk Management

Steps 8 to 10 comprise the operational phase of the SRMP, where the strategic and tactical work performed in previous steps is put into action. This phase serves as the engine for the cyclical, integrated risk management process. In other words, after implementing your strategic management plan, the operational phase is a time for self evaluation and reflection. At this point, you will need to reconcile the events you anticipated with what actually happened, allowing for better management in the future. Due to the integrated nature of the operational phase, Steps 8 to 10 (Implementation, Monitor and Adjust, Replan) have been combined and developed into a single tool.

Step 8: Implementation

The management plan is executed during the implementation stage. The most important influence on implementation is resource management: making sure the correct quantity and quality of resources are available at the appropriate time and place. In its purest form, implementation is focused on three fundamental activities: resource acquisition, flow, and coordination. Resources are traditionally grouped into three broad categories: land, labor, and capital. In livestock operations, resources include grass and forage, stored feeds, livestock, buildings, labor, and management. A similar list can be assembled for any business or any alternative agricultural enterprise.

Understandably, Steps 9 and 10 (Monitor and Adjust; and Replan) are tied very closely to the implementation stage because the flow of resources can fluctuate greatly both during and between production years. As any operator knows, adjusting and replanning for resource changes often need to be performed on the spot due to events such as inclement weather and illness. However, solid strategic planning (Steps 1 to 3) can minimize adverse results by encouraging better preparedness and a more systematic reaction. One example of this is developing an effective communication plan that addresses resource flow of equipment and labor.

Step 9: Monitor and Adjust

As discussed above, even the most solid operational management decisions may not go as planned. Delays in receipt of raw materials, failure to make progress as intended, unforeseen weather events, or changes in markets all require monitoring and potential adjustment. Step 9 allows the operator to monitor resource performance and to make necessary mid-course adjustments by providing informational and behavioral control.

Informational control refers to the knowledge gained through managing daily activities that accompany routine operational plans. It allows the operator to

STEPS 8 10

accomplish tactical objectives that serve as milestones for achieving strategic goals, while honoring the organization's mission statement and core values. In contrast, behavioral control facilitates feedback to ensure the tactical steps are consistent with the organizational mission and goals established in Step 3.

Step 10: Replan

Clearly, as the production year unfolds, management must monitor and adjust to keep the business functioning smoothly. However, such mid-course corrections do not provide for changes in the overall business strategy. Replanning considers organizational changes that would drastically alter the organizational mission. This encompasses retirement of key personnel, inclusion of new partners or children into the organization, and large real estate purchases or sales. Replanning also considers smaller changes such as increases in debt capital due to unfavorable market conditions, higher than expected crop yields due to favorable weather, lower than expected feed costs, or faster than anticipated harvest due to higher labor efficiency. The replanning phase is a mid-cycle, less formal version of the goal-setting process outlined in Step 3 (which should be completed annually).

Essential elements of replanning include evaluating resource performance and reconsidering strategic goals.

Adequate, accurate, and timely record keeping is critical for the evaluation and replanning process. This requires an operator to strike a necessary balance between no documentation and micro-management. For example, you could over do it by writing down every time a ranch hand swings his shovel. On the other end of spectrum, though, you could lose or discard the compulsory annual reports such as tax returns. The best way to implement replanning (Step 10) and strategic planning (Step 3) is to have a balanced record-keeping approach.

The following information on the Ag Survivor Program is designed to help you determine whether you are keeping the appropriate records to guide you through the replanning and goal-setting process. This will help you determine whether you need to spend more or less time on the record keeping process and to determine whether or not you have collected the appropriate operational records.

Ag Survivor

A Computer Simulation for Managing Risks

The Ag Survivor simulation program is a software tool developed by the RightRisk Education Team to teach risk concepts and management strategies to agricultural producers in an experiential learning environment. Ag Survivor is just one of several risk management concepts taught as part of the RightRisk educational program series that lets producers test first-hand whether they are better off implementing newly learned risk management tools and strategies like the SRMP. With the Ag Survivor simulator, a manager can compare a current strategy for selling grain to other standardized risk management strategies such as those learned in the SRMP. For example, the safety first method picks the best average performing management system that meets a minimum standard. A producer might eliminate from consideration any practices that have more than a 20 percent chance of loss. Armed with this experience, producers can explore how they might use various risk management tools to better achieve their goals.

The RightRisk program presents the complicated and confusing risk management subject matter in an easily understood format by fully engaging workshop attendees in a hands-on farm or ranch simulation. In RightRisk workshops, participants are testing pricing or marketing alternatives, looking at how much feed to keep in inventory, analyzing the implications of maintaining ownership of weaned animals, and experimenting with the purchase of insurance products.

Through friendly team competition at workshops taking place throughout the West and interaction with trained RightRisk instructors, participants are able to experience a unique, interactive learning environment conducive to producing long-term growth in decision-making skills. RightRisk workshop participants are put in the role of a farm or ranch manager and asked to make decisions for the operation over a one or multi-year time span in a simulated environment. This creates an energetic and interactive group learning experience with many teachable moments. The discussions that take place within management teams as decisions are being made add tremendous value to the workshop experience. Likewise, the discussions that take place between management teams as they compare their team performances create some interesting and lively conversations. Workshop participants are typically highly engaged and eager to repeat the experience.

Ag Survivor uses real probabilities and impacts to depict risks. With this information, participants are making risk management decisions for the operation as it progresses through several decision-making periods. In each period, a click of the button determines the random outcomes and moves the management team forward in time with updated prices, yield estimates, and inventories, including other information. By the end of the simulation, each team will have progressed through one or more production years with the representative farm or ranch. Along the way, each management team will have experienced the same prices, yields, and external factors as the other management teams but will have distinguished themselves by their unique set of inputted decisions. This provides the basis for a lively, slightly competitive conversation about who did the best.