



# Evaluating Risk Strategies

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# Introduction to Risk Strategies

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# Introduction to Risk

## Classical

*A special case of uncertainty where the outcomes and probabilities are known*



## Another Way

*The effect of uncertainty on objectives.<sup>1</sup>*

**RISK**

## Popular Usage

*Future events where the outcomes are uncertain*

<sup>1</sup>ISO 31000:2009 Risk Management Principles and Guidelines.  
International Organization for Standardization, 2009



# Five Sources of Risk in Agriculture

## ✓ Five distinct sources of agricultural enterprise risk

- Market risk
- Production risk
- Institutional risk
- Human risk
- Financial risk





## How is Risk Estimated?

- ✓ Estimated by making projections about the probability and the potential impact
- ✓ Estimates can be used to prioritize the risks for management's attention
- ✓ Simple ratings of high/medium/low probability and associated impact can be presented in a 3x3 payoff table

	$s_1$	$s_1$	$s_1$
$d_1$	4	4	-2
$d_2$	0	2	-1
$d_3$	3	5	-1

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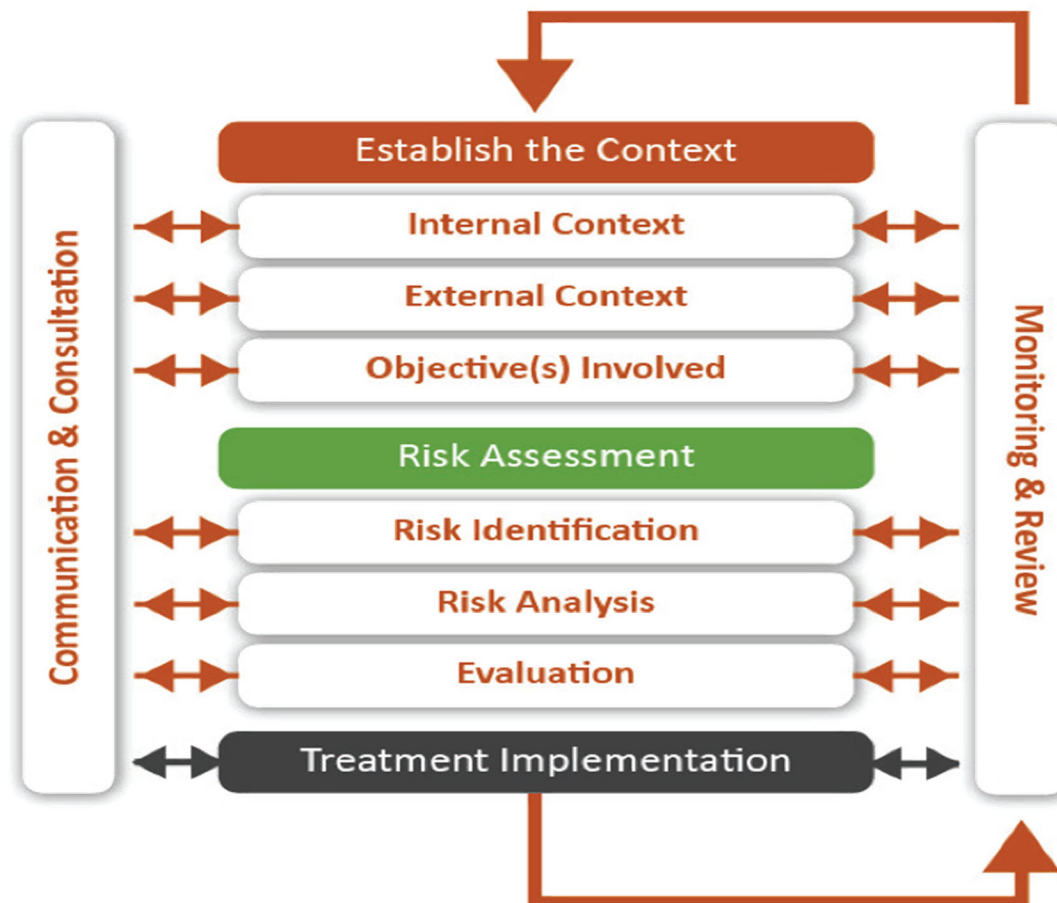
# What is Risk Management?

*Risk management can be thought of as one or more **strategies** created with the goal of reducing the **consequences** of negative outcomes, or to increase the **likelihood** of positive outcomes.*





# Process for Risk Management







# Risk Management Strategies



# What is a Strategy?



- ✓ **Strategos** - a military general, or someone who commands a *stratos*, or army
- ✓ *A strategy should outline actions that utilize the resources available or provide a means of getting needed resources in order to accomplish a specific goal<sup>1</sup>*

<sup>1</sup>Strategic Action Planning NOW! Gates, 1998.)

# Establishing Risk Management Goals & Objectives

- ✓ Setting goals and objectives are one method for describing what the future should look like
- ✓ Few farms/ranches have formal, written plans
- ✓ Formal goals provide the basis for
  - Monitoring business activity
  - Guide decision-making
  - Offer insights into appropriate contingency responses when external forces require mid-course corrections.<sup>2</sup>



<sup>2</sup>Applied Risk Management in Agriculture. Hoag, et al. 2010.)



# Risk Management Strategies in Agriculture



**AVOID**



**TRANSFER**



**CONTROL**



**ACCEPT**





# Evaluating Strategies



# Recognizing Strategic Decisions

- ✓ Sub-set of broader decisions focused on selecting where the business should go in the future
- ✓ Determining **direction** (goals)
- ✓ Selecting **how** forward progress is made (strategy)



# Irreversibility

- ✓ Important element in recognizing the strategic aspect of a decision
- ✓ Does not make all irreversible decisions strategic
- ✓ Conversely, the degree of irreversibility suggests that decisions that **inform** and **guide** irreversible decisions are more strategic

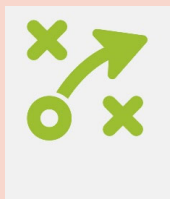


SOURCE: *A Formal Theory of Strategy.*  
*Management Science.* Van den Steen. 2017.

# What is a Decision? What is a Strategy?

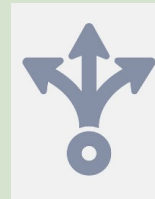
## Decisions

- The outcome of a process that selects a preferred option or a course of action
- Made from among many alternatives, which may lead to the same outcome
- However, each alternative has its own unique set of resource requirements and oversight



## Strategies

- The means by which the business intends to use resources to reach the ends they desire
- Include one or more goals, resources, and a method or approach for action
- Require multiple decision points to bring them to conclusion





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# Making a Selection



- ✓ Alternatives are weighed and comparisons considered
- ✓ Important questions to ask:
  - What is the desired outcome from following the strategy?
  - How long will it take the strategy to demonstrate whether it is effective or not?
  - How do the costs of each alternative compare where the strategy may require transferring risk?

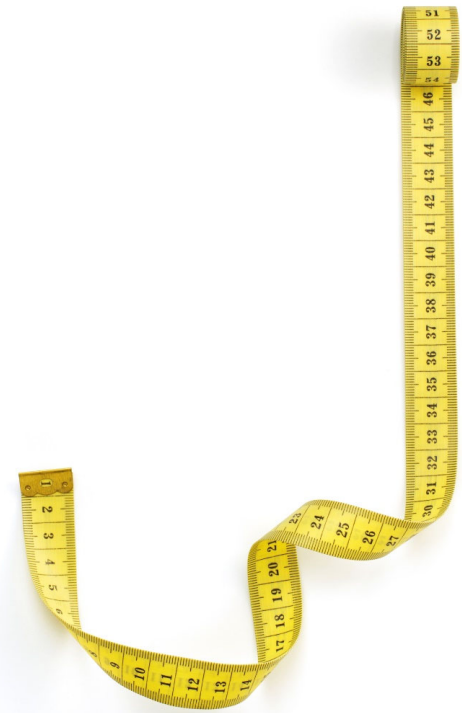
# Evaluating Strategies

- ✓ Good risk management strategies can still lead to bad outcomes because of uncertainty
- ✓ Not carried out by a single decision
- ✓ Failures are often the result of a lack of support across multiple decision points
- ✓ Good strategies sometimes don't work
- ✓ Consider past results, but realize, too much focus on the past can lead to biased decisions and poor results



# Measuring Progress & Accomplishments

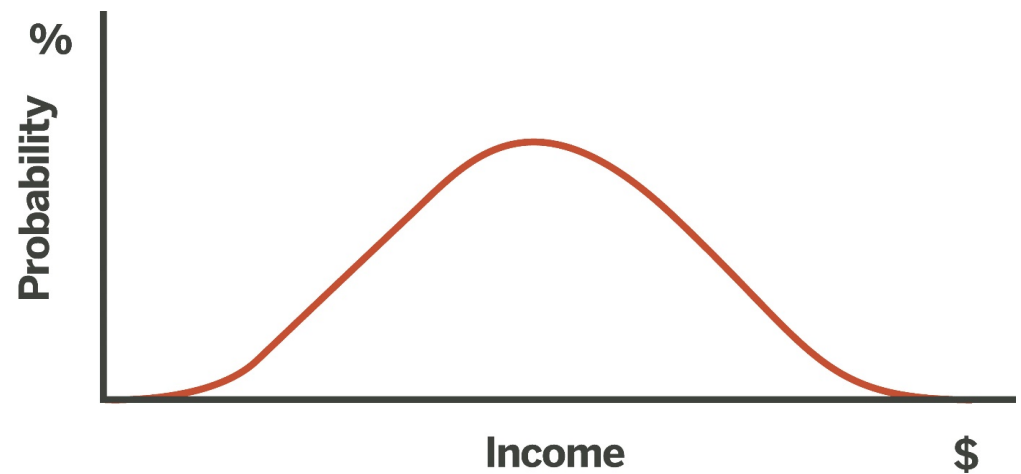
- ✓ Many make decisions based upon the intention of **moving the business in a particular direction**, rather than focused around reaching a specific performance target
- ✓ Some management strategies have a greater chance of success
- ✓ Decisions with a high degree of **financial magnitude** or that **reoccur frequently** should be considered with greater care
- ✓ Not all people view risk in the same way
- ✓ Challenging to reach consensus about goals and a definition of success



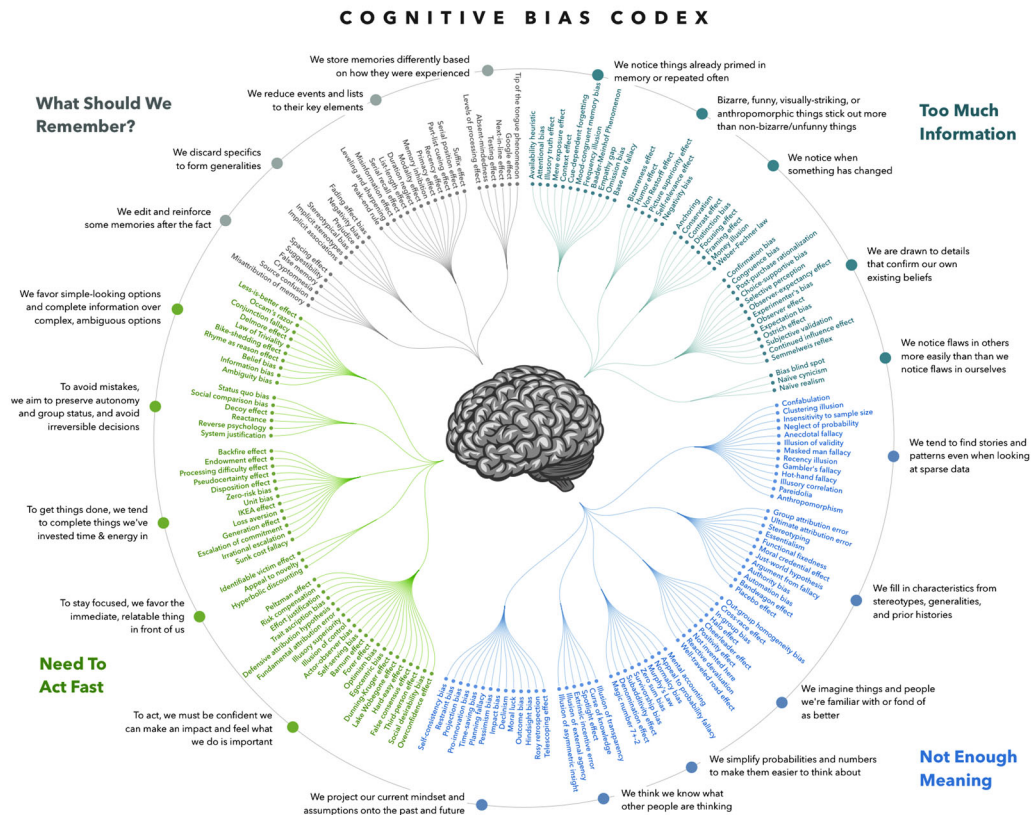


## Quantifying Variations in Outcomes

- ✓ Once a risk strategy has been selected, the decision maker should take time to assess how well the strategy is working
- ✓ Results of following a selected strategy are often variable
- ✓ It can be tricky to decide whether a good strategy was selected or if there might have been a better alternative available



# Possible Bias



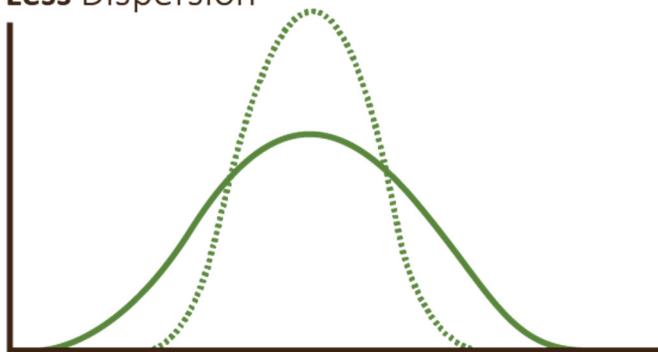
There are many sources of bias that influence the consideration of alternative decisions

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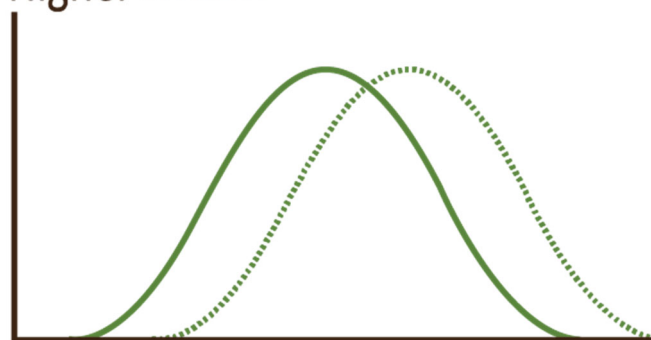
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# Describing Risk Outcomes With PDFs

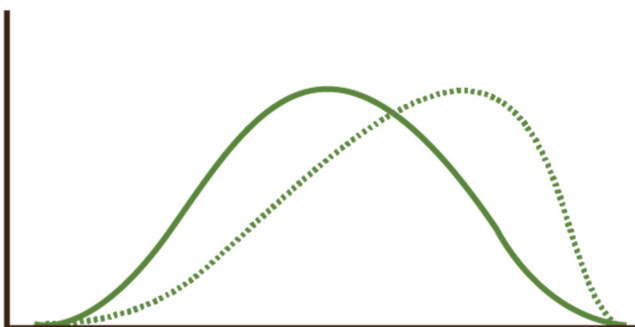
Same Mean,  
Less Dispersion



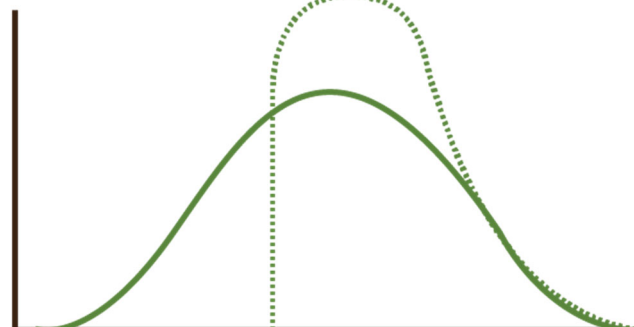
Same Dispersion,  
Higher Mean



*Skewing* the  
Distribution



**Truncating**  
the Distribution





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# Seven Characteristics of Good Decisions

1. **Appropriate Decision Frame**
2. **Clear Values to Adhere to and Objectives to Accomplish**
3. **Creative Alternatives**
4. **Good Information**
5. **Clear Tradeoffs and Sound Reasoning**
6. **Choice Alignment with Values and Objectives**
7. **Committed Implementation**

## Sources:

Hammond, et al. (1999)

Spetzler et al. (2016)

Seven Characteristics of a Good Decision. *Cornhusker Economics*. Parsons. 2016

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## Is The Strategy Successful?

- ✓ Evaluation of the success or failure of a particular strategy is an exercise in weighing the result (benefit) versus the cost of that success
- ✓ Evaluating the success or failure of a strategy is not accomplished by looking at individual decisions, but rather by weighing everything together





# Questions?

[RightRisk.org](http://RightRisk.org)



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EXTENSION





# RightRisk™

The image displays a variety of educational resources from the RightRisk project. At the top left, the 'RightRisk' logo is prominently featured. Below it, several CD-ROMs are arranged in a circular pattern. The CDs include titles such as 'AGR-Lite TRAINING', 'Insuring Success for Wyoming Agriculture 2006', 'Management Succession: Where Do We Want to Go? A Self-Assessment', 'A Lasting Legacy' (Course 1 and Course 2), 'Insuring Success for Wyoming Agriculture 2008', 'Pasture, Rangeland, Forage (PRF) Pilot Insurance Program', 'Getting on Track: Better Management Through Basic Ag Records', and 'Getting on Track: Understanding Financial Performance'. In the center, there are three screenshots of web-based tools: 'AG SURVIVOR', 'RightRisk Analytics' (which includes a sidebar with buttons for Risk Scenario Planner, Enterprise Risk Analyzer, RD Financial, Machine Risk Calculator, Risk Navigator Toolbox, and Exit), and 'RightRisk IRME' (which includes buttons for Management Succession, Lasting Legacy, Financials, Enterprise Feasibility, Pasture/Forage Insurance, Agricultural Taxes, and Exit). To the left of the website screenshots is a book titled 'Applied Risk Management in Agriculture' edited by Dana L. Hoag, published by CRC Press. At the bottom left, the logos for RMA/USDA, University of Wyoming, and Colorado State Extension are visible. A large green arrow at the bottom right points to the website address <http://RightRisk.org>.

<http://RightRisk.org>



# RightRisk Analytics:

*~ tools to evaluate alternatives*

- **Risk Scenario Planner**  
relatively minor changes, risk analysis
- **Machine Risk Calculator**  
machine costs, custom rates, risk analysis
- **Forage Risk Analyzer**  
lease arrangements, forage supply, housing costs
- **Enterprise Risk Analyzer**  
larger enterprise-level, enterprise mix changes
- **RDFinancial**  
substantial changes, whole farm budgets, financial analysis, credit scoring
- **Multi-Temporal Risk Analysis**  
partial budgets incorporating time, risk analysis
- **Risk Navigator**  
strategic risk planning and analysis

**RightRisk ANALYTICS**

Risk Scenario Planner  
Machine Risk Calculator  
Forage Risk Analyzer  
Enterprise Risk Analyzer  
RD Financial  
Multi-Temporal Risk Analysis  
Risk Navigator Toolbox

RightRisk Analytics is a toolbox of alternative risk analysis tools.  
Click one of the buttons on the left to learn more about what each tool can do and to access the tool.

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**Risk Scenario Planning**  
By: John P. Hewlett, University of Wyoming  
Dr. Jay Parsons, University of Nebraska-Lincoln

**Machine Risk Calculator**  
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**Forage Risk Analyzer**  
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**Risk Navigator**  
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Risk Analysis  
Risk Analysis  
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Investment Planner

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# RightRisk<sup>TM</sup>

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