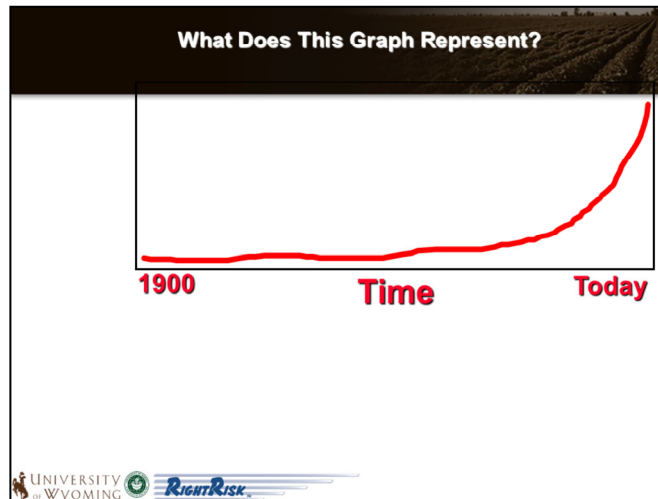


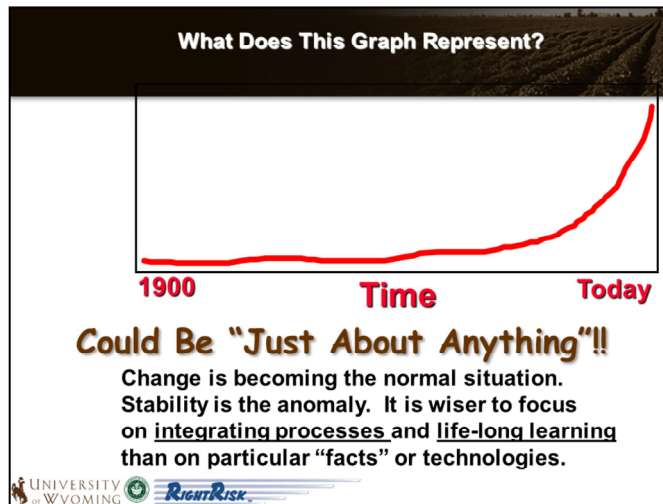
Welcome to this presentation covering the analysis of alternatives for sustainable beef production.

We will begin by exploring some of the basic ideas about risk and risk management for your business.

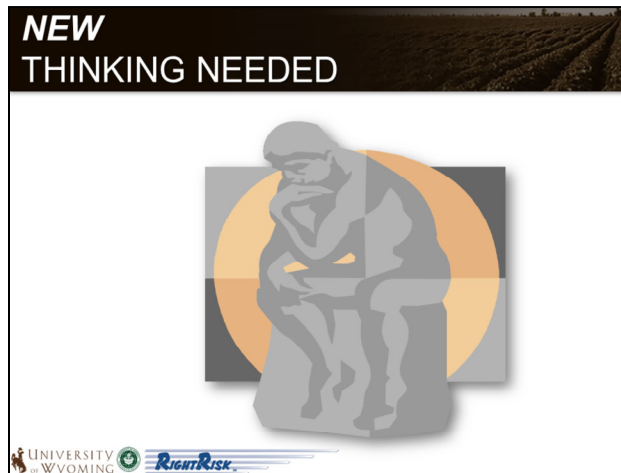
We will then move on to consider evaluating the use of a RightRisk tool for evaluating management decisions and its application when comparing mineral supplementation programs for representative beef herds.



I like to begin presentations with this slide and challenge the audience to consider the many changes that have occurred across the timeline included in the graph.



After engaging in discussion with participants, I reveal the statement at the bottom of the slide, stressing that, as pro-active managers of agricultural operations, we need to plan for change; even if we find it uncomfortable.



This slide is intended to help all of us realize that to adapt to a changing world will take new skills and approaches.

New thinking will be required for managers to be successful solving new problems moving forward.

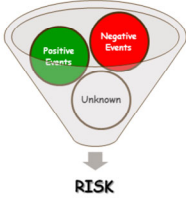
An old adage to consider here:

A definition of insanity is continuing to do the same thing but expecting a different result.

Operating in the future, with increasing change will likely require a new approach as well.

What is RISK?

- **Certainty**- lack of doubt
- **Uncertainty**- doubt about future events
- **RISK**- potential variation in the outcome of future events



UNIVERSITY OF WYOMING *RiskRisk*

Risk is an interesting subject.

However, it is one that is challenging to discuss, as there is a lot of terminology surrounding the concepts, as well as a lack of familiarity for most people.

On this slide, certainty is a case where there is no risk. We are not in doubt about the future and don't wonder how things will turn out because things are certain.

In general, we don't encounter much certainty in life.

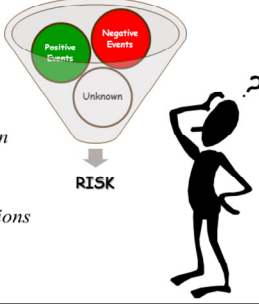
Uncertainty, however, we encounter often and it is this uncertainty about the future that brings risk into the equation.

As depicted here, risk includes positive events, negative events, and even events that we know have taken place but as yet the outcomes are unknown.

All contribute to risk and uncertainty about the future.

What is RISK?

- **Cost of Loss**
 - *Income*
 - *Resources*
 - *Productive capacity, etc.*
- **Cost of Uncertainty**
 - *Worry, doubt, fear, misallocation of resources, etc.*
 - *With potential for gain or loss comes moral or ethical implications*



UNIVERSITY OF WYOMING *RiskRisk*


When we consider the future, we are mostly worried about the possibility of loss.

Loss of income, loss of resource productivity through reduced yields, poor performance, or other factors.

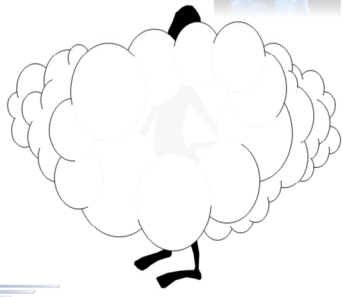
If we stop to think a bit longer, we likely would also include the worry and fears we have around not knowing how things will turn out. That stress can certainly take a toll on us as managers.


I refer to these collectively as the human dimension of risk and the fact that we don't know much about the future with any degree of certainty.

The HUMAN Dimension of Risk



- Emotionally we avoid risk (uncertainty) to avoid the shame of:
 - *Failure,*
 - *Being wrong,*
 - *Being laughed at*
 - *Being made fun of,*
 - *Loosing the farm, etc.*

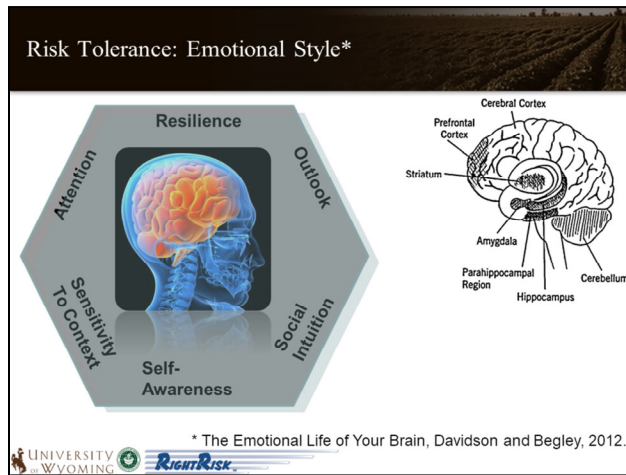


UNIVERSITY OF WYOMING  *Risk*

In fact, I believe many managers are willing to consider only a very limited range of risk management strategies in order to avoid certain emotions and the public shame that comes with making mistakes.

No one wants to be known as having lost the family farm due to making poor decisions.

As a result, we manage using only safe strategies that we are comfortable with and we have seen work most of the time in the past.



Another interesting thing about risk is that we don't all see it the same way.

Some individuals are willing to take more risk than others. Stated another way they have a greater tolerance for risk.

This can lead to differences of opinions about what the right decision might be or what approach we should use where it appears that change is increasing.

Risk Biases

Visual & Algorithmic Design: John Manoogian III
 Concept & Categorization: Buster Benson
 List of 188 Cognitive Biases: Wikipedia

- **Thinking *fast***
- **Thinking *slow***
*Kahneman
 Tversky
 1979*

COGNITIVE BIAS CODEX

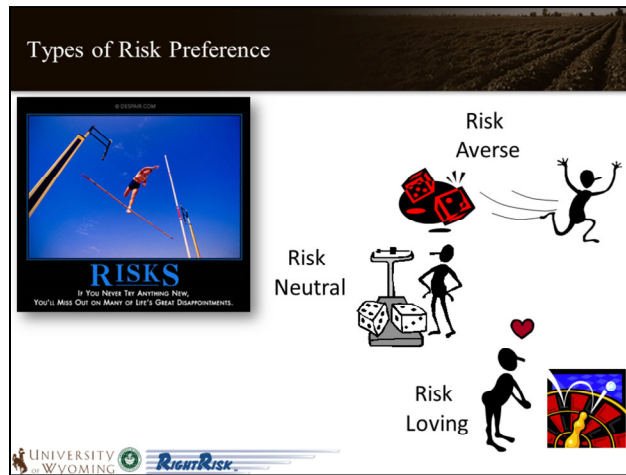
UNIVERSITY OF WYOMING *Risk*

designbacks.co

There are also many sources of bias that influence our consideration of alternative decisions.

Recent research by behavioral economists, neural physiologists, psychologists, sociologists and others has led to the development of a list of biases. There could be many others beyond the 188 listed here:

The thought is that these biases lead us to make poor decisions, where they negatively influence our thinking, especially regarding risk.



Agricultural economists and others have found it difficult to incorporate risk into theories about how individuals go about making decisions.

This is especially true where different individuals view risk differently. In such cases, individual decision makers faced with the same set of facts will make different decisions. Why is that?

One reason is that they see the risk differently.

Traditionally, those different viewpoints have been lumped into three, large categories:

Risk Averse – individuals that try to minimize risk where possible

Risk Loving – individuals that don't look so much at the risk but, rather, at the possible rewards and are willing to accept the risks that go along with it

OR somewhere in between,

Risk Neutral – individuals that are more concerned with the benefits and costs and don't focus so much on the underlying chances that things won't turn out that way

Personal Perspectives on Risk

- Generational differences
- Gender differences
- Life stage/family differences
- Life experiences

These are dynamic and change over time



UNIVERSITY OF WYOMING *Risk*

Other factors can also explain why we might see risk differently.

Research is showing that there are gender differences in perspectives about risk and we are all aware there are generational differences as well.


But have you thought about how you might view risk differently where the outcomes are more important or where you have family members depending on you to make good management decisions?

Have you considered that you might be willing to take more risk in one aspect of your life than you would be in another area?

In addition, views about risk do not remain the same as we gain experience and learn more about what is possible or even likely through time.

Risk Tradeoffs

Profits are returns for taking risks



- **Upside:** Greater risk taking usually leads to greater wealth over time
- **Downside:** Losses from risk taking can potentially be devastating
- Managing risks are a matter of **evaluating tradeoffs**
- How much **risk** (uncertainty) are you willing to accept for **possible higher returns**?

UNIVERSITY OF WYOMING *Risk*

Another valuable point to recognize is that without risk there would be no profits. Or, if there were, we should expect they would be very low.

There would also be no losses. Where there is certainty the future is perfectly clear!

However, the real world includes uncertainty. In agriculture or any other business, profitability is a return to the manager for taking risk.

The point here is that zero risk is not the target. Instead, managing risk to a level you and your team are comfortable with is more realistic.

Sources of Risk in Agriculture – *Ag Risk 5*

1. Marketing/Price Risk
2. Production Risk
3. Institutional/Legal Risk
4. Human Risk
5. Financial Risk



Managing agricultural businesses in today's environment is definitely challenging, perhaps more challenging than in the past. One of the reasons for the increased difficulties comes from the many risks operators face.

Traditionally, we have described risk in agricultural as coming from five distinct sources: market risk, production risk, institutional risk, human risk, and financial risk.

Strategies for Managing Risk

1. **Avoid it**
2. **Reduce it**
 - a) *Reduce the probability it will happen*
 - b) *Reduce the impact if it does happen*
3. **Transfer it outside the business**
 - a) *Insurance*
 - b) *Contracting*
4. **Increase capacity to bare**
 - a) *Increase reserves*
 - b) *Maintain flexibility*
5. **Accept it**

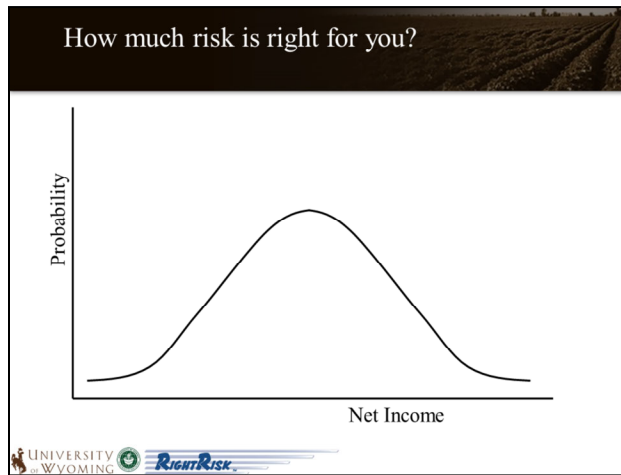


Strategies for managing risk or the consequences of a negative event, should it occur, vary by source of risk and level of protection already in place.

In general, the options range from avoiding the risky practice entirely (minimizing the risk) to accepting the risk (self-insuring).

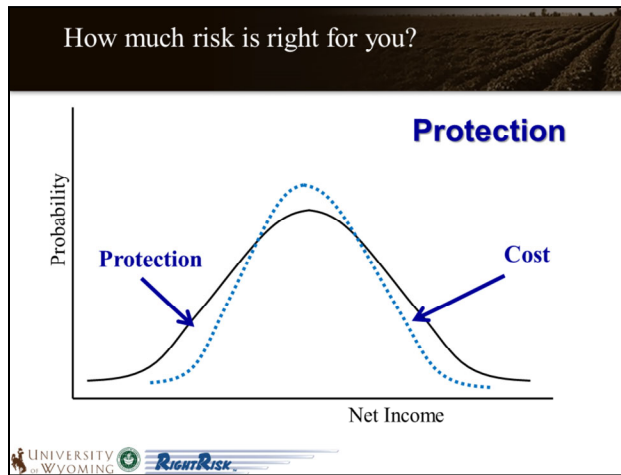
Between these two extremes are several possibilities for managing the risk to a more acceptable level by: reducing the risk, transferring the risk, or increasing the capacity to bear the risk.

How much risk is right for you?



In general, risk management strategies are intended to improve the net income of the business over time. One way of depicting this is with a probability curve.

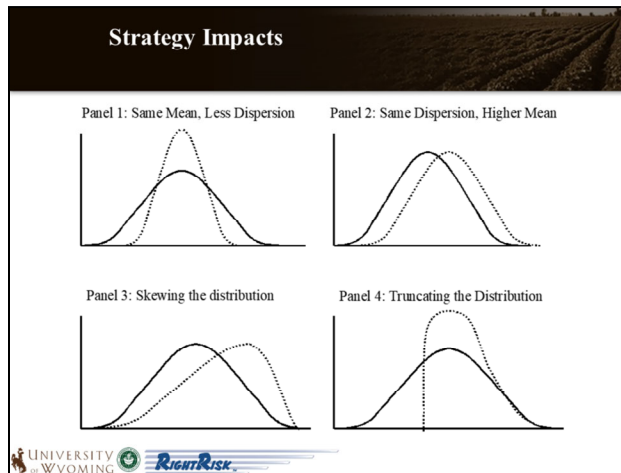
Here you can see we have net income described on the x-axis with probability described on the y-axis. As we move upward along the curve, the probability is increasing. As a result, the highest point on the curve is where the average net income would be found and along the tails to either side are lesser probability events with either lower or higher levels of net income.



Now, if we follow some sort of risk management strategy we might want to consider how we would like to adjust that initial curve. We need to think through how we want that probability curve to change, whether that might be by changing its shape, shifting it left or right, or by some other adjustment.

In this conceptual graph on the screen, we see that we have reduced the spread of the distribution. By doing so, we have reduced the consequence of the lowest returns, as indicated by the protection arrow to the left. In order to gain that protection we've also had to give up some of the higher-level returns labeled as cost to the right. In return, we have increased the probability of earning an average level return centered around the middle of the diagram, as shown at the peak of the curve.

In short, we've purchased some level of protection by making some sort of payment, but in return we have increased the possibility of earning a more consistent level of income.

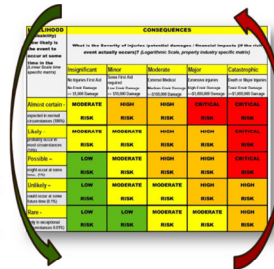


There is definitely more than one way to influence the probability distribution and impact net income.

This slide depicts several possibilities open to us. The trick is for us to decide what might be the intended impact of any risk management strategy we are considering for our business. What are the costs and benefits to that strategy over time?

Risk Treatment

- Selecting one or more *options for modifying risks* and implementing those options
- Involves a *cyclical process* of assessing a risk treatment and deciding whether residual risk levels are acceptable
- If not, then selecting a *new risk treatment* and assessing the effect of that treatment until the residual risk matches the risk goal(s)

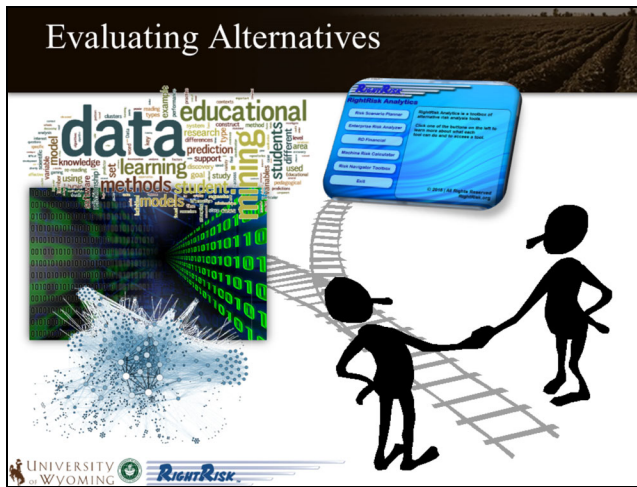


Selecting a risk management strategy is not a one-off decision. More than likely we will make some adjustment to our current strategy and, after some time has passed, we will evaluate how well we believe that strategy is working.

After that trial period, we may then be willing to make further adjustments in the strategy. In other words, the process is likely cyclical and includes repeated adjustments before we settle on the approach we are most comfortable with.

This, of course, assumes that we have plenty of time to adjust. There are times, however, where we will need to react more quickly in response to changing conditions outside our direct control.

In such cases, how well things turn out is likely directly related to how much time we have spent considering risk and its impact on our business before action must be taken. Some refer to this as working on the business rather than working in the business.



Comparing risk management strategies can be challenging without risk analytics to help us.

In fact, that may be the biggest challenge to overcome when selecting and following a strategy for managing risk.

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

UNIVERSITY OF WYOMING **RightRisk**

The RightRisk team has spent the last several years developing risk analytics to evaluate various management decisions, including comparing risk management strategies.

The balance of this presentation will focus on the Risk Scenario Planner tool, which is designed to assist farm and ranch managers evaluate the impact of relatively minor management changes and to include the effects or impacts of risk in that analysis.

Risk Scenario Planner Description

- The Risk Scenario Planner (RSP) Tool is designed to provide financial analysis of management strategies and decisions involving **risk**
- Examples include: changes in production practices, adding and subtracting operating inputs, or other management alternatives that are fairly straight forward to define and evaluate
- The RSP tool uses a **partial budget framework** for collecting data to reflect one or more decisions for analysis




The Risk Scenario Planning Tool was developed to help producers play the “what-if” game while analyzing proposed changes to their operation. The tool is based on the standard set-up for a partial budget.

Partial Budget Framework

A partial budget is a tool used to analyze the **financial effect** of simple management changes

- **Positive Effects**
 - *Added Returns*
 - *Reduced Costs*
- **Negative Effects**
 - *Added Costs*
 - *Reduced Returns*

Added Returns	Added Costs
Reduced Costs	Reduced Returns

UNIVERSITY OF WYOMING  *RiskRisk*

A partial budget is a simple framework to analyze changes for a portion of an operation.

Those changes are described by entering the financial consequence of the change as:

An Added return

or

A Reduced cost

OR as

An Added cost

or

A Reduced return

Positive effects of the change are calculated by adding the added returns and reduced costs

From which we subtract the

Negative effects of the change or the sum of the reduced returns and added costs

RSP Tool

- The RSP tool goes beyond a partial budget by taking **risk** (change over time) into consideration
- The RSP tool allows one or possibly two of the input values to be **uncertain numbers** for any alternative analyzed
- This should lead to a more complete understanding of **possible outcomes** if the change is implemented



The Risk Scenario Planning Tool provides a template for the decision-maker to enter the financial effects of making proposed change(s) to their operation. It then adds the ability for the decision-maker to further refine estimates for some of input values as uncertain numbers. This produces a more robust analysis of the proposed change and a more thorough understanding of the possible outcomes if the change is implemented.

RSP Input Page

Decision Description

RightRisk Enter description of action/concern here

Partial Budget Form

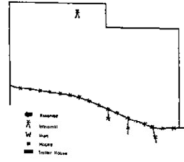
Positive Effects				Negative Effects			
Added Returns		Added Costs		Reduced Returns		Reduced Costs	
Description of return	Quantity	Value	Total	Description of added cost	Quantity	Value	Total
Description of added return #1	0	\$	\$	Description of added cost #1	0	\$	\$
Description of added return #2	0	\$	\$	Description of added cost #2	0	\$	\$
Description of added return #3	0	\$	\$	Description of added cost #3	0	\$	\$
Description of Change				Description of Change			

Reduced Costs		Reduced Returns	
Description of reduced	Quantity	Value per Unit Expected	Description of reduced return
Description of reduced	0	\$	Description of reduced return #1
Description of reduced	0	\$	Description of reduced return #2
Description of reduced	0	\$	Description of reduced return #3
TOTAL Positive Effects		TOTAL Negative Effects	
Added Returns + Reduced Costs		Added Costs + Reduced Returns	
\$		\$	
Expected Total Net Benefit			
Net Benefit of: \$			

The calculations include totaling the Positive Effects on the left, as well as the total Negative Effects on the right side of the form. The total overall expected net benefit is also calculated at the bottom.

Case 1: Convert to Commercial Mineral Mix

- JR Land and Livestock, a 200 cow/calf operation near Waimea, has not followed any regular or organized program for mineral supplementation of their cattle over the past 15 or so years.
- Recent work by the UH Cooperative Extension Service has found that mineral program using a *commercial mineral mix* could provide much of the mineral supplementation they need at around \$31.89/cow/year.



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Let's consider an example. JR Land and Livestock, a 200 cow/calf operation in the Waimea area, has not followed any regular or organized program for mineral supplementation of their cattle over the past 15 or so years.

Recent work by the UH Cooperative Extension Service has found that current prices for commercial mineral mix runs about \$31.89/cow/year.

Case 1: Convert to Commercial Mineral Mix

- **Labor** to distribute the mineral is expected to cost around \$20/hour, including all payroll taxes and benefits. They estimate that 3/4 of an hour per week or around 42 hours would be needed for the year.
- Two new **mineral bunks** (1 bunk/100 head) would be needed at an estimated cost of \$500 each and are expected to last 10 years. Currently they are paying about 7 percent interest on their operating capital.
- **Other expenses** for additional fuel, vehicle maintenance and miscellaneous costs are expected to increase about \$300/year.
- They also anticipate **management costs** will increase around \$250/year to manage the new mineral program.



Labor to distribute the mineral is expected to cost around \$20/hour, including all payroll taxes and benefits. They estimate that 3/4 of an hour per week or around 42 hours would be needed for the year, for a total of around \$840 for the year.

The ranch expects that two new mineral bunks would need to be constructed at an estimated cost of \$500 each and are expected to last 10 years, giving an annual cost of around \$100/year.

Currently they are paying about 7 percent interest on their operating capital and they calculate the increased operating debt interest charge as \$35 per year.

In addition, they expect that other expenses for fuel, maintenance, etc. under the new mineral program will be around \$300 total for the year.

The ranch anticipates management will be required to spend about 5 additional hours per year managing the new mineral program. This is expected to increase annual costs around \$250/year to manage the new mineral program.

Case 1: Convert to Commercial Mineral Mix

- After visiting extensively with one of the neighboring ranch families, JR L&L managers have learned that the benefits from supplementing the needed mineral should result in the ranch selling an additional 40 *weaned calves* at 6 months of age, weighing around 400 lbs/head. Prices are currently around \$135/cwt on these lighter calves.
- Furthermore, their annual *veterinary costs* (\$6,015) are expected to decrease by 10 percent (\$602) per year.



After visiting extensively with one of the neighboring ranch families, JR L&L managers have learned that the benefits from supplementing the needed mineral should result in the ranch selling an additional 40 weaned calves at 6 months of age, weighing around 400 lbs./head.

Prices are currently around \$135/cwt on these lighter calves, giving them an estimated increased calf sales of \$21,600 per year.

They also expect that their annual veterinary costs (\$6,015) will decrease, due to overall improved herd health, by 10 percent or \$602 per year.

Case 1: Convert to Commercial Mineral Mix

- Another expected change is a cut in their culling rate. They expect to sell 17 fewer *cull females* each year, at a value of \$704/head. This is a reduction in revenue, but they would also save on *transportation and marketing costs* for these cull animals, usually costing the ranch around \$740/year.
- Finally, after some additional thought, the managers realize that they should expect an increase in *transportation and marketing cost* associated with the added calves. They estimate this additional cost at \$536/year.



Another change JR L&L expects is a cut in their culling rate. This is a reduction in revenue, where they expect to sell 17 fewer cull females each year due to improved reproductive performance and overall improved longevity of cows in the herd.

They typically sell these cull females at around \$704/head for a total of \$11,968 in reduced returns per year.

In addition, they would also save on transportation and marketing costs for these cull animals. The annual cost for transporting cull females usually totals around \$740/year.

Finally, after some additional thought, the managers realize that they should expect an increase in transportation and marketing cost associated with added calves they will produce as \$536 total cost per year.

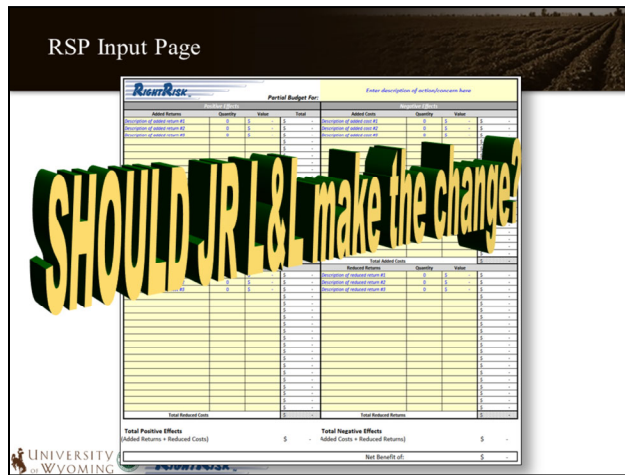
Case 1: Convert to Commercial Mineral Mix

- Based on past prices, they find that the *commercial mineral mix* prices have varied between \$29.46 and \$39.86/cow/year.
- Lastly, after some market research, they feel that *calf prices* are likely to range between \$120 and \$165/cwt. over the next few years.

The ranch is interested in minimizing any losses under the new mineral program. One way that they can do that is to look at historic variations in the cost of the commercial mineral mix, as well as past changes in calf sale prices.

Based on past prices, they find that the commercial mineral mix prices have varied between \$29.46 and \$39.86/cow/year.

After some market research, they feel that calf prices are likely to range between \$120 and \$165/cwt. over the next few years.

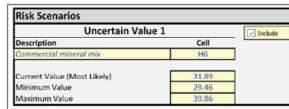


Given a quick overview of the changes JR L&L is expecting will be needed in their operation to get going with a commercial mineral mix supplementation program, I could stop here and ask, “Should they make the change?”

You could STOP viewing this presentation here and return to the web page to download a document with all the details for JR Land and Livestock commercial mineral supplementation program by clicking the link “RSP Tool PROBLEM HAWAII County.”

You can also download a copy of the Risk Scenario Planning tool to enter the JR L&L information and answer the question for yourself.

Case 1: Convert to Commercial Mineral Mix - RSP Input Screen



Risk Scenarios	
Uncertain Value 1	
Description	Cell
Commercial Mineral Mix	H6
Current Value (Most Likely)	31.89
Minimum Value	29.46
Maximum Value	39.86

- JR L&L wants to make the price of the *commercial mineral mix* uncertain:
- The current value of \$31.89/cow/year is in cell H6 of the Risk Scenario Planning tool. We enter “Commercial Mineral Mix” as the description and “H6” as the cell under Uncertain Value 1
 - Then enter \$31.89 as the current value,
 - \$29.46 as a possible minimum value, and
 - \$39.86 as a possible maximum value.



Now consider that JR L&L managers want to make the price of the commercial mineral mix uncertain:

The current value of \$31.89/cow/year is in cell H6 of the Risk Scenario Planning tool.

We enter “Commercial Mineral Mix” as the description and “H6” as the cell under Uncertain Value 1

Then enter \$31.89 as the current value,

\$29.46 as a possible minimum value, and

\$39.86 as a possible maximum value.

Case 1: Convert to Commercial Mineral Mix - RSP Input Screen

Uncertain Value 1		Uncertain Value 2	
Description	Cell	Description	Cell
Commercial mineral mix	D6	Added calf sales	D6
Current Value (Most Likely)	1135	Current Value (Most Likely)	135
Minimum Value	120	Minimum Value	120
Maximum Value	165	Maximum Value	165

JR L&L also wants to make the price of the *price of calves* uncertain:

- The current price of \$135/cwt is in cell D28 of the Risk Scenario Planning tool. We enter "Added calf sales" as the description and "D28" as the cell under Uncertain Value 1
- Then enter \$135 as the current value,
- \$120 as a possible minimum value, and
- \$165 as a possible maximum value.



Given the importance that increased revenue from additional calf sales makes to this program, JR L&L also wants to make the price of the calves uncertain:

The current price of \$135/cwt is in cell D6 of the Risk Scenario Planning tool.

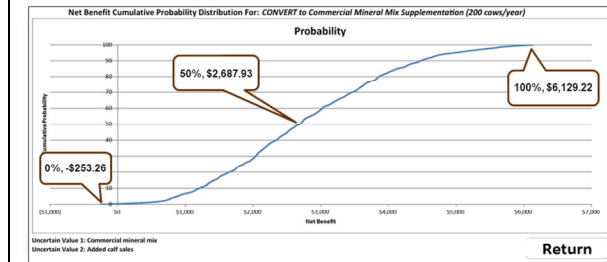
They enter "Added calf sales" as the description and "D6" as the cell under Uncertain Value 2

Then enter \$135 as the current value,

\$120 as a possible minimum value, and

\$165 as a possible maximum value.

Case 1: Convert to Commercial Mineral Mix



- A cumulative distribution graph gives the probability of earning a net return at or below any certain value.



After allowing the two uncertain values (price of commercial mineral mix and the price of added calves) to vary over 1,000 possible outcomes, the results of the RSP analysis are presented on this slide.

What can we see from the analysis? Over the long run, we would expect the following:

There is a 100 percent probability that the Net Benefit would fall below \$6,129.22 per year

There is a 100 percent probability that the Net Benefit would be above -\$253.26 per year

In addition, there is an estimated 50/50 chance that the Net Benefit would come out around \$2,687.93

Here we might ask again, “Should JR Land & Livestock adopt a commercial mineral mix supplementation program?”

Of course your answer to this question depends a bit on your perspective. Some will see the benefits of additional returns and improved herd health and performance as worth the extra effort. Others may not.

Summary

The Risk Scenario Planning tool:

- Can be a useful tool for analyzing **management** strategies and decisions involving **risk**
- Represents a better way to handle the presence of **uncertainty** by thinking in terms of **distributions** of possible outcomes over time
- Results in more **informed** decision-making



The Risk Scenario Planning tool:

Users interested in evaluating other ranges of mineral prices, added calf sale prices or changes in the most likely values can easily make those changes and rerun the analysis.

In addition, the RSP tool could also evaluate allowing other factors included in the budget to vary in the analysis.

In this way, the RSP tool can be useful for analyzing many different management strategies and decisions involving risk

It is our belief that it represents a better way to handle the presence of uncertainty by thinking in terms of distributions of possible outcomes over time;

And should result in more informed decision-making

Case 2: Convert to Free-Choice Mineral Supplementation

- The X Bar Ranch, a 500 cow/calf operation near Waimea, has been supplementing their cattle with a commercial mineral mix for over the past 10 years.
- Current prices for commercial mineral mix runs about \$31.89/cow/year. Recent work by the UH Cooperative Extension Service has found that an individual, *cafeteria-style mineral*
- *program* may reduce the cost of supplementation to about \$13.10/cow/year.



Now consider a second example. The X Bar Ranch, a 500 cow/calf operation in the Waimea area, has been supplementing their cattle with a commercial mineral mix for over the past 10 years.

Current prices for commercial mineral mix runs about \$34.66/cow/year. Recent work by the UH Cooperative Extension Service has found that an individual, cafeteria-style mineral program may reduce the cost of supplementation to about \$16.69/cow/year.

Case 2: Convert to Free-Choice Mineral Supplementation

- Five new *mineral bunks* (1 bunk/100 head) would need to be constructed at an estimated cost of \$1,000 each and are expected to last 10 years. Currently they are paying about 7 percent interest on their operating capital.
- They anticipate they will spend an average of about 1 additional hour per week putting out mineral following the free-choice approach. *Labor cost* is around \$20/hour, including all payroll taxes and benefits.
- *Other expenses* for additional fuel, vehicle maintenance and miscellaneous costs are expected to increase about \$250/year.
- They also anticipate *management costs* will increase around \$500/year to manage the new mineral program.



Five new mineral bunks (1 bunk/100 head) would need to be constructed at an estimated cost of \$1,000 each and are expected to last 10 years. Currently they are paying about 7 percent interest on their operating capital.

They anticipate they will spend an average of about 1 additional hour per week putting out mineral following the free-choice approach. Labor cost is around \$20/hour, including all payroll taxes and benefits.

Other expenses for additional fuel, vehicle maintenance and miscellaneous costs are expected to increase about \$250/year.

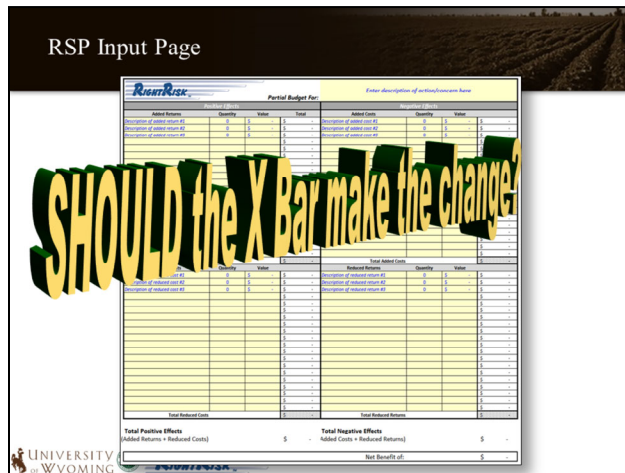
They also anticipate management costs will increase around \$500/year to manage the new mineral program.

Case 2: Convert to Free-Choice Mineral Supplementation

- Based on past prices, they find that the *free-choice mineral mix* could be expected range between \$12.90 and \$19.19/cow/year.
- After further reflection, they realize that *commercial mineral mix* prices have varied between \$29.46 and \$39.86/cow/year.

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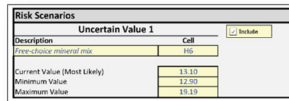


We can use the Risk Scenario Planning tool to help us evaluation this management decision. Should the X Bar change their mineral supplementation program?

You could STOP viewing this presentation here and return to the web page to download a document with all the details for the X Bar Ranch mineral supplementation program by clicking the link “RSP Tool PROBLEM HAWAII County.”

You can also download a copy of the Risk Scenario Planning tool to enter the X Bar information and answer the question for yourself.

Case 1: Convert to Free-Choice Mineral Supplementation - RSP Input Screen



Description	Cell
Free-choice mineral mix	H6

Current Value (Most Likely) \$13.10
Minimum Value \$12.90
Maximum Value \$19.19

The X Bar wants to make the price of the *free-choice mineral* mix uncertain:

- The current value of \$13.10/cow/year is in cell H6 of the Risk Scenario Planning tool. We enter “Free-choice Mineral Mix” as the description and “H6” as the cell under Uncertain Value 1
- Then enter \$13.10 as the current value,
- \$12.90 as a possible minimum value, and
- \$19.19 as a possible maximum value.



Now consider that the X Bar wants to make the price of the free-choice mineral mix uncertain:

The current value of \$13.10/cow/year is in cell H6 of the Risk Scenario Planning tool.

We enter “Free-choice Mineral Mix” as the description and “H6” as the cell under Uncertain Value 1

Then enter \$13.10 as the current or most likely value,

\$12.90 as a possible minimum value, and

\$19.19 as a possible maximum value.

Case 1: Convert to Free-Choice Mineral Supplementation - RSP Input Screen

Uncertain Value 1		Uncertain Value 2	
Description	Cell	Description	Cell
Free-choice mineral mix	D28	Commercial mineral mix	D28
Current Value (Most Likely)	\$31.89	Current Value (Most Likely)	\$31.89
Minimum Value	\$29.46	Minimum Value	\$29.46
Maximum Value	\$39.86	Maximum Value	\$39.86

The X Bar also wants to make the price of the *commercial mineral mix* uncertain:

- The current value of \$31.89/cow/year is in cell D28 of the Risk Scenario Planning tool. We enter "Commercial Mineral Mix" as the description and "D28" as the cell under Uncertain Value 1
- Then enter \$31.89 as the current value,
- \$29.46 as a possible minimum value, and
- \$39.86 as a possible maximum value.



In addition, the X Bar also wants to make the price of the commercial mineral mix uncertain:

The current value of \$31.89/cow/year is in cell D28 of the Risk Scenario Planning tool.

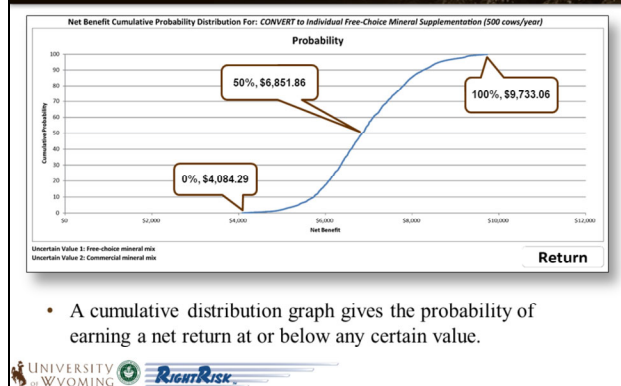
We enter "Free-choice Mineral Mix" as the description and "D28" as the cell under Uncertain Value 2.

Then enter \$31.89 as the current or most likely value,

\$29.46 as a possible minimum value, and

\$39.86 as a possible maximum value.

Case 2: Covert to Free-Choice Mineral Supplementation



After allowing the two uncertain values (price of free-choice and commercial mineral mixes) to vary over 1,000 possible outcomes, the results of the RSP analysis are presented on this slide.

What can we see from the analysis? Over the long run, we would expect the following:

There is a 100 percent probability that the Net Benefit would fall below \$9,733 per year

There is a 100 percent probability that the Net Benefit would be above \$4,084 per year

In addition, there would be a 50/50 chance that the Net Benefit would come out around \$6,852 per year

Finally, the analysis shows there would be a 100 percent chance that the Net Benefit would be above \$0, given our assumptions.

Now we might ask again, “Should the X Bar change their mineral supplementation program?”

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

UNIVERSITY OF WYOMING **RightRisk**

<http://RightRisk.org> > tools

INCREASING CHANGE

Again, the Risk Scenario Planner is only one of several risk analytics tools available at the RightRisk web site.

These tools are all available free of charge and may be downloaded, along with guides for their use, as well as many different examples from the web site.

We believe that incorporating risk into your decision making will help you make better decisions and potentially lead to improved profits over time.



The RightRisk team has also compiled a number of self-paced learning courses that are also available free of charge.

These courses cover everything from record keeping and financial analysis to end-of-life planning and mapping out the transition to the next generation.

Online AG SURVIVOR risk simulations, a textbook and associated RISK NAVIGATOR sites offer a great deal for those wanting to learn more.



A series of Risk Management Profiles and other online publications offer insights into how managers might better incorporate risk management controls into their management strategies.



Finally, the monthly RightRisk newsletter covering various risk management topics may be something you would be interested in subscribing to

OR just read the archived copies available on the web site.

With a seven-year publication history, there are many titles to choose from.

Slide 51

JPH1

John P. Hewlett, 2019-12-18



Thank you for taking time to view this recorded presentation.

We hope you have learned a little about how the Risk Scenario Planning tool might be used to analyze management strategies and decisions involving risk.

The Risk Scenario Planning tool and an online course explaining its use is available via a link on the webpage where you accessed this presentation, as well as at the RightRisk website: RightRisk.org.

My contact information is on the slide, should you have any further questions.

Again, thank you for your time.