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NORTH CENTRAL EXTENSION RISK MANAGEMENT EDUCATION

USDA United States Department of Agriculture National Institute of Food and Agriculture

CENTER FOR AGRICULTURAL PROFITABILITY
Institute of Agriculture and Natural Resources

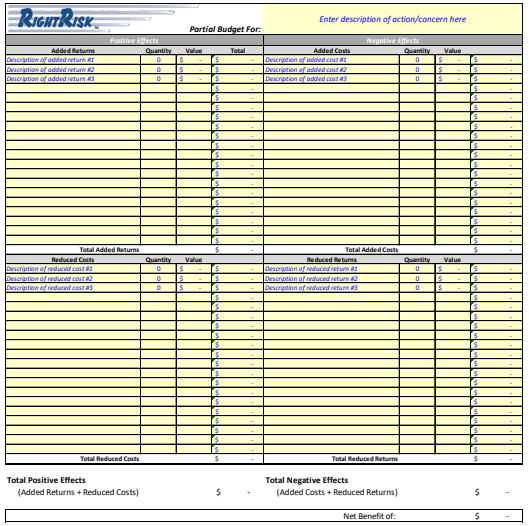
Risk Scenario Planning

Nebraska Women in Agriculture Conference
February 24, 2023

Risk Scenario Planning Tool

- The Risk Scenario Planning tool was developed to help producers play the “what-if” game while analyzing possible changes.
- The tool uses a partial budget approach with added uncertainties.

http://www.RightRisk.org



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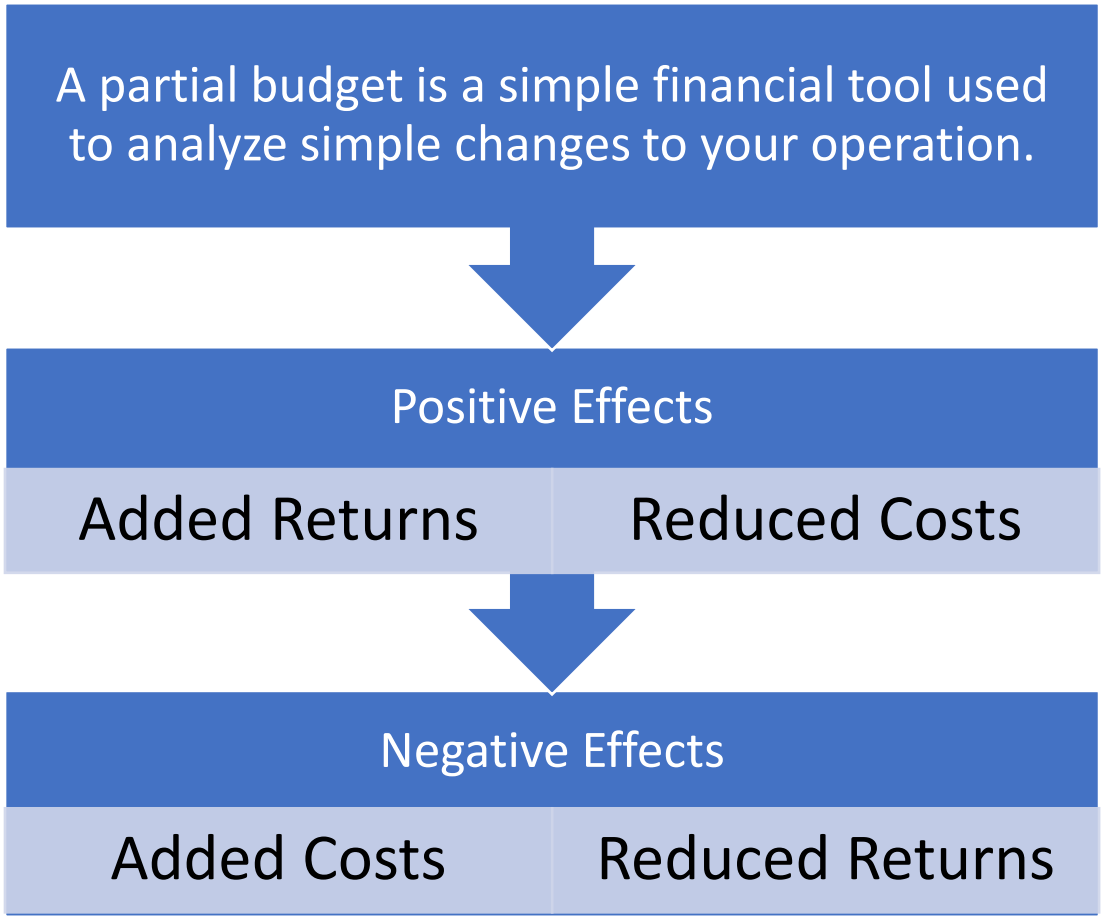
Partial Budget



The Risk Scenario Planning tool incorporates the ability to define some of the input values as uncertain numbers creating a more thorough understanding of possible outcomes if the change is implemented.

Scenario Case #1: Cattle Change

- Suppose you have a 350 head cow-calf enterprise.
- Each year you replace 15% of your cows with 52 head of bred replacement heifers you develop from your own herd.
- Each year you have been holding back 58 heifer calves from your calf crop to develop with the expectation that 6 will not get bred.
- Contemplated Change
  - What if you raised 100 head of replacement heifers each year, kept 52 head for your own herd and sold the rest of the bred heifers to select producers as a bred heifer enterprise?

Scenario Case #1: Cattle Change

RightRisk™ **Partial Budget For:** *Raising Bred Heifers to Sell*

Positive Effects				*Negative Effects*			
Added Returns	**Quantity**	**Value**	**Total**	**Added Costs**	**Quantity**	**Value**	
Bred Heifers (head)	38	$ 1,500.00	$ 57,000.00	*Additional Pasture (42 hd x 5 AUMs)*	210	$ 50.00	$ 10,500.00
4 additional open heifers (900 lbs.)	36	$ 150.00	$ 5,400.00	*Hay (42 hd x 0.6 tons)*	25.2	$ 180.00	$ 4,536.00
			$ -	*Corn Stalks (42 hd x 120 days)*	5040	$ 0.50	$ 2,520.00
			$ -	*Wet Distiller's Grain (42 hd x 0.5 tons)*	21	$ 100.00	$ 2,100.00
			$ -	*Salt and Mineral (42 hd x 80 lbs.)*	3360	$ 0.48	$ 1,612.80
			$ -	*Breeding Costs (per head)*	42	$ 40.00	$ 1,680.00
			$ -	*Vet & Medicine (per head)*	42	$ 10.00	$ 420.00
			$ -	*Fuel, Supplies, Repairs, etc. (per head)*	42	$ 15.00	$ 630.00
			$ -	*Additional Interest*	$ 39,690.00	$ 0.06	$ 2,381.40
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
Total Added Returns			$ 62,400.00	**Total Added Costs**			$ 26,380.20
Reduced Costs	**Quantity**	**Value**		**Reduced Returns**	**Quantity**	**Value**	
			$ -	*42 Heifer Calves @ 525 pounds (cwt.)*	220.5	$ 180.00	$ 39,690.00
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
Total Reduced Costs			$ -	**Total Reduced Returns**			$ 39,690.00

Total Positive Effects		**Total Negative Effects**	
(Added Returns + Reduced Costs)	$ 62,400.00	(Added Costs + Reduced Returns)	$ 66,070.20

Net Benefit of: Raising Bred Heifers to Sell	$ (3,670.20)

Scenario Case #1: Cattle Change

The Risk Scenario Planning tool allows you to make up to two values in your partial budget uncertain and analyzes the results.

Risk Scenarios

Uncertain Value 1 ☑ Include

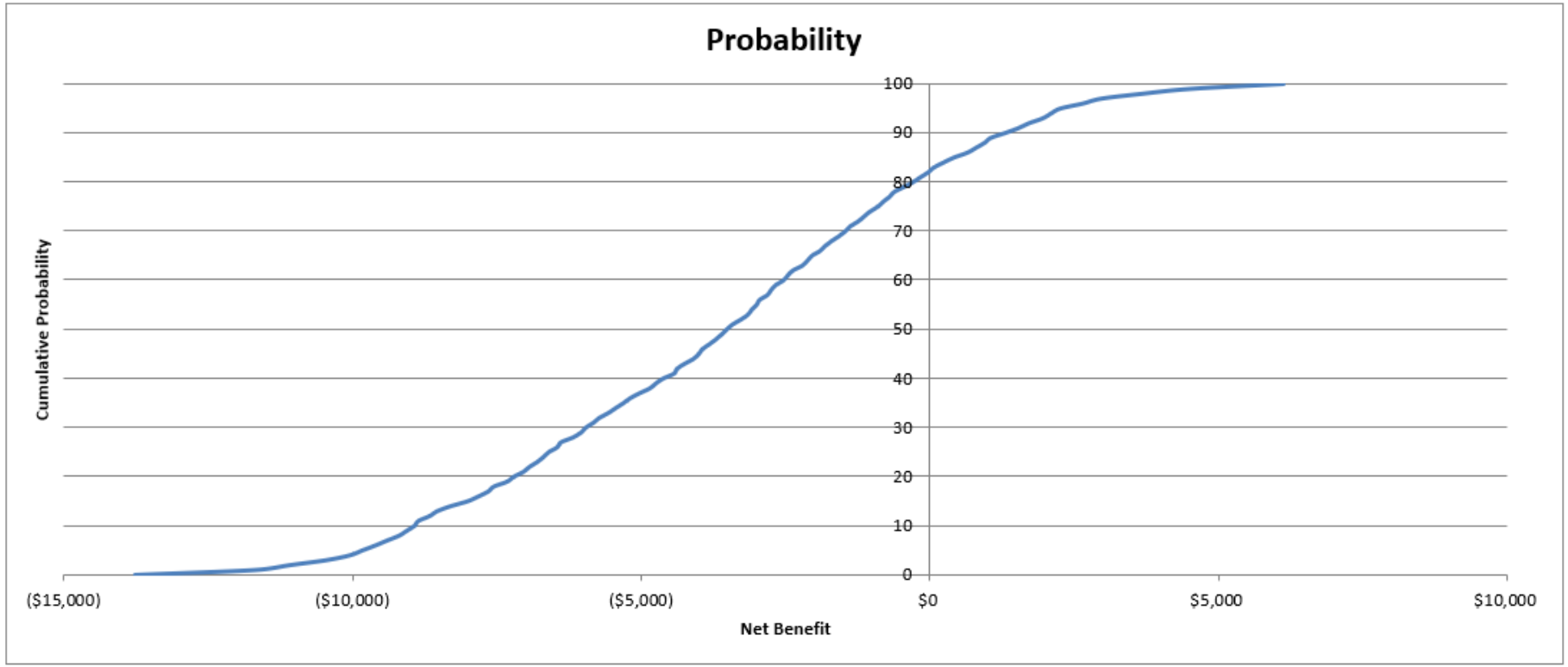
Description	Cell
Bred Heifers (head)	D6

Current Value (Most Likely)	1500
Minimum Value	1200
Maximum Value	1800

- Suppose you feel the value of your bred heifers could be as high as $1,800 per head or as low as $1,200 per head.

Scenario Case #1: Cattle Change

The value of your bred heifers range from a high of $1,800 per head to a low of $1,200 per head.



Scenario Case #1: Cattle Change

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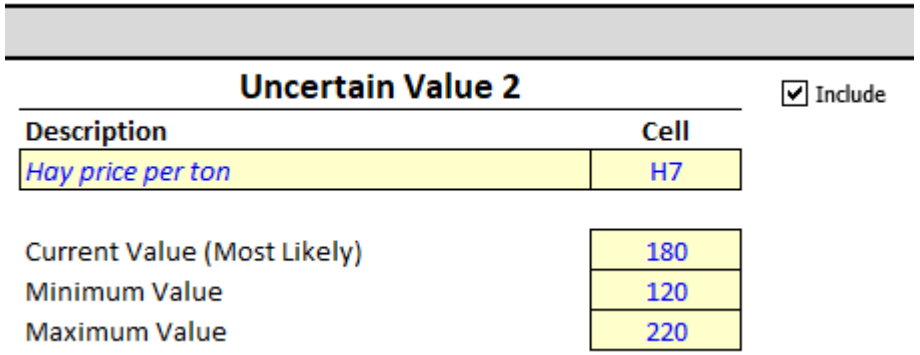
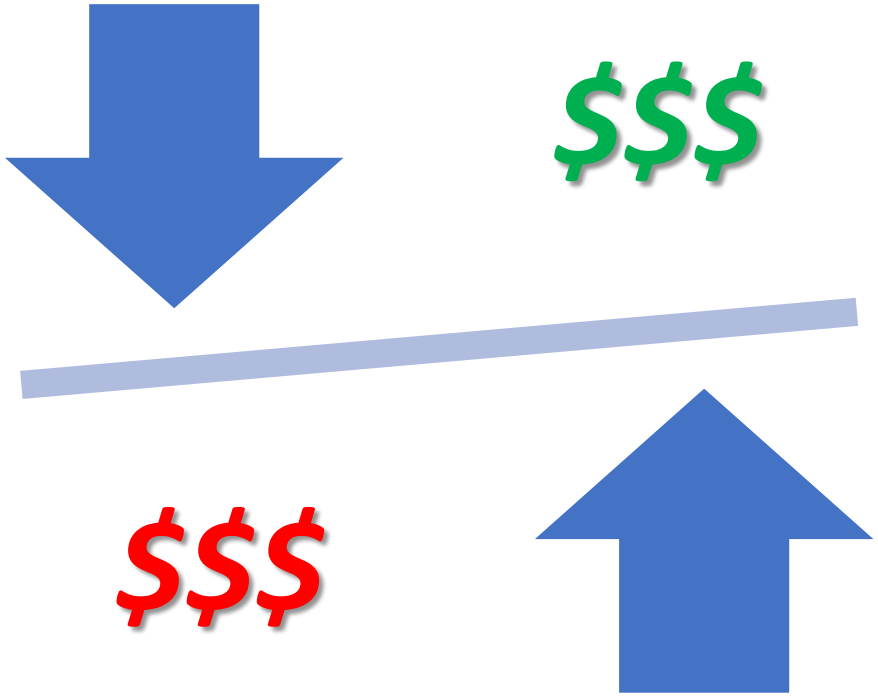


Uncertain Value 2		☑ Include
Description	**Cell**	
Hay price per ton	H7	
Current Value (Most Likely)	180	
Minimum Value	120	
Maximum Value	220	

- Suppose you feel the value of hay could be as high as $220 per ton or as low as $120 per ton.

Scenario Case #1: Cattle Change



Can we depict high cattle price scenarios and low-cattle price scenarios on one graph and learn something?

Scenario Case #2: Crop Change

- Suppose you run an irrigated crop farm.
- Your current rotation of crops consists of 100 acres of alfalfa hay, 100 acres of sugar beets, 75 acres of dry beans, and 125 acres of corn.
- You have become concerned about the recent slide in corn prices in light of the current high cost of inputs.
- Contemplated Change
  - What if you switched 50 acres of corn production into dry bean production?

Scenario Case #2: Crop Change

RightRisk™ **Partial Budget For:** *Replace Corn with more Dry Beans*

Positive Effects				*Negative Effects*			
Added Returns	**Quantity**	**Value**	**Total**	**Added Costs**	**Quantity**	**Value**	
Dry Bean Sales (20 cwt/acre)	1000	$ 42.00	$ 42,000.00	*Dry Bean Cost per acre*	50	$ 438.86	$ 21,943.00
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
Total Added Returns			$ 42,000.00	**Total Added Costs**			$ 21,943.00
Reduced Costs	**Quantity**	**Value**		**Reduced Returns**	**Quantity**	**Value**	
Corn Cost per acre	50	$ 625.00	$ 31,250.00	*Corn grain sales (180 bu./acre)*	9000	$ 5.50	$ 49,500.00
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
Total Reduced Costs			$ 31,250.00	**Total Reduced Returns**			$ 49,500.00

Total Positive Effects		**Total Negative Effects**	
(Added Returns + Reduced Costs)	$ 73,250.00	(Added Costs + Reduced Returns)	$ 71,443.00

Net Benefit of: Replace Corn with more Dry Beans	$ 1,807.00

Scenario Case #2: Crop Change

The Risk Scenario Planning tool allows you to make up to two values in your partial budget uncertain and analyzes the results.

Risk Scenarios

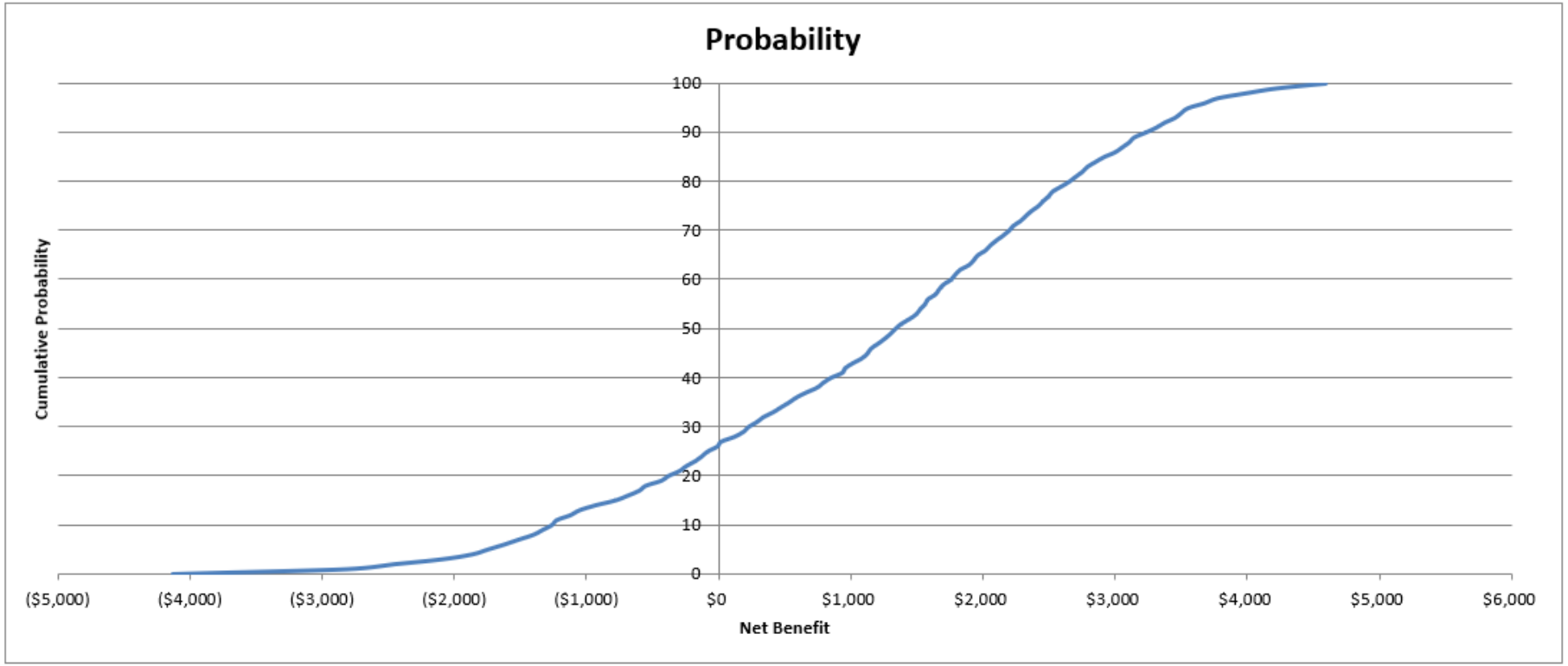
Uncertain Value 1 ☑ Include

Description	Cell
Dry Bean price per cwt.	D6

Current Value (Most Likely)	42
Minimum Value	35
Maximum Value	45

- Suppose you feel the price of dry beans could be as high as $45 per cwt. or as low as $35 per cwt.

Scenario Case #2: Crop Change



Scenario Case #2: Crop Change

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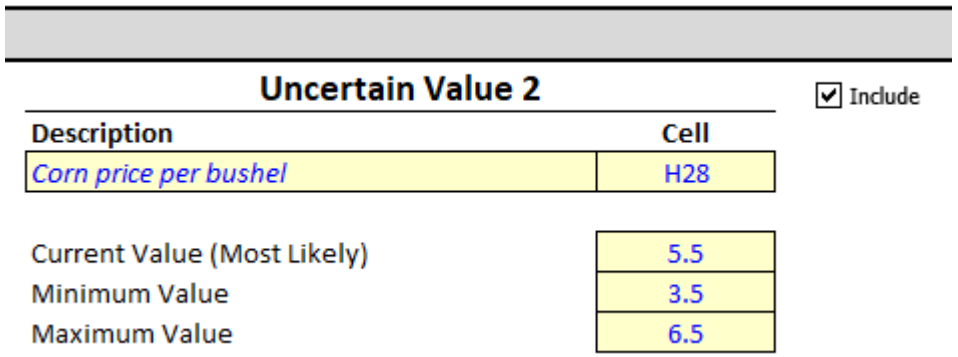
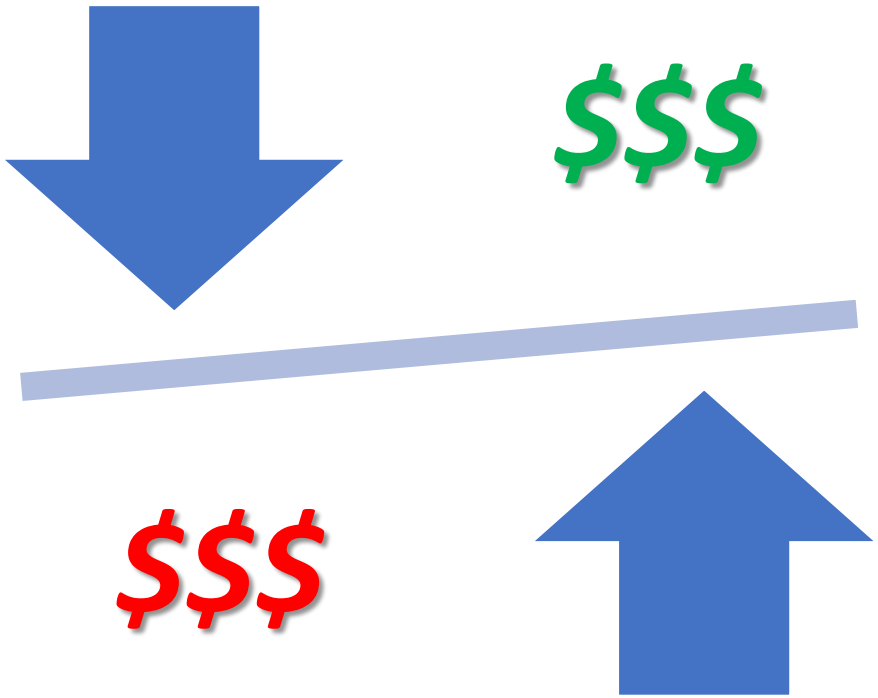


Uncertain Value 2		☑ Include
Description	**Cell**	
Corn price per bushel	H28	
Current Value (Most Likely)	5.5	
Minimum Value	3.5	
Maximum Value	6.5	

- Suppose you feel the price of corn could be as high as $6.50 per bushel or as low as $3.50 per bushel.

Scenario Case #2: Crop Change



Can we depict high/low price scenarios and high/low yield scenarios on one graph and learn something?

Scenario Case #3: Insurance Change

- Suppose you run a 350 head cow/calf operation.
- Each year you sell a 100+ head of weaned steer calves averaging about 500 pounds.
- Contemplated Change
  - What if you purchased Livestock Risk Protection (LRP-Feeder Cattle) insurance on 100 head of weaned steer calves at 500 pounds for a mid October sales window?

Scenario Case #3: Insurance Change

RightRisk™

Partial Budget For: *LRP Insurance Decision*

Positive Effects				*Negative Effects*			
Added Returns	**Quantity**	**Value**	**Total**	**Added Costs**	**Quantity**	**Value**	
Basis Value		$ 10.00	$ -	*LRP Premium*	500	$ 3.68	$ 1,840.00
LRP Price Index		$ 200.00	$ -				$ -
LRP Coverage Price		$ 198.00	$ -				$ -
			$ -				$ -
Calf Sales (cwt.)	500	$ 210.00	$ 105,000.00				$ -
LRP Indemnity	500	$ -	$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
Total Added Returns			$ 105,000.00	**Total Added Costs**			$ 1,840.00
Reduced Costs	**Quantity**	**Value**		**Reduced Returns**	**Quantity**	**Value**	
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
			$ -				$ -
Total Reduced Costs			$ -	**Total Reduced Returns**			$ -

Total Positive Effects (Added Returns + Reduced Costs)	$ 105,000.00	**Total Negative Effects** (Added Costs + Reduced Returns)	$ 1,840.00

Net Benefit of: LRP Insurance Decision	$ 103,160.00

Scenario Case #3: Insurance Change

The Risk Scenario Planning tool allows you to make up to two values in your partial budget uncertain and analyzes the results.

Risk Scenarios

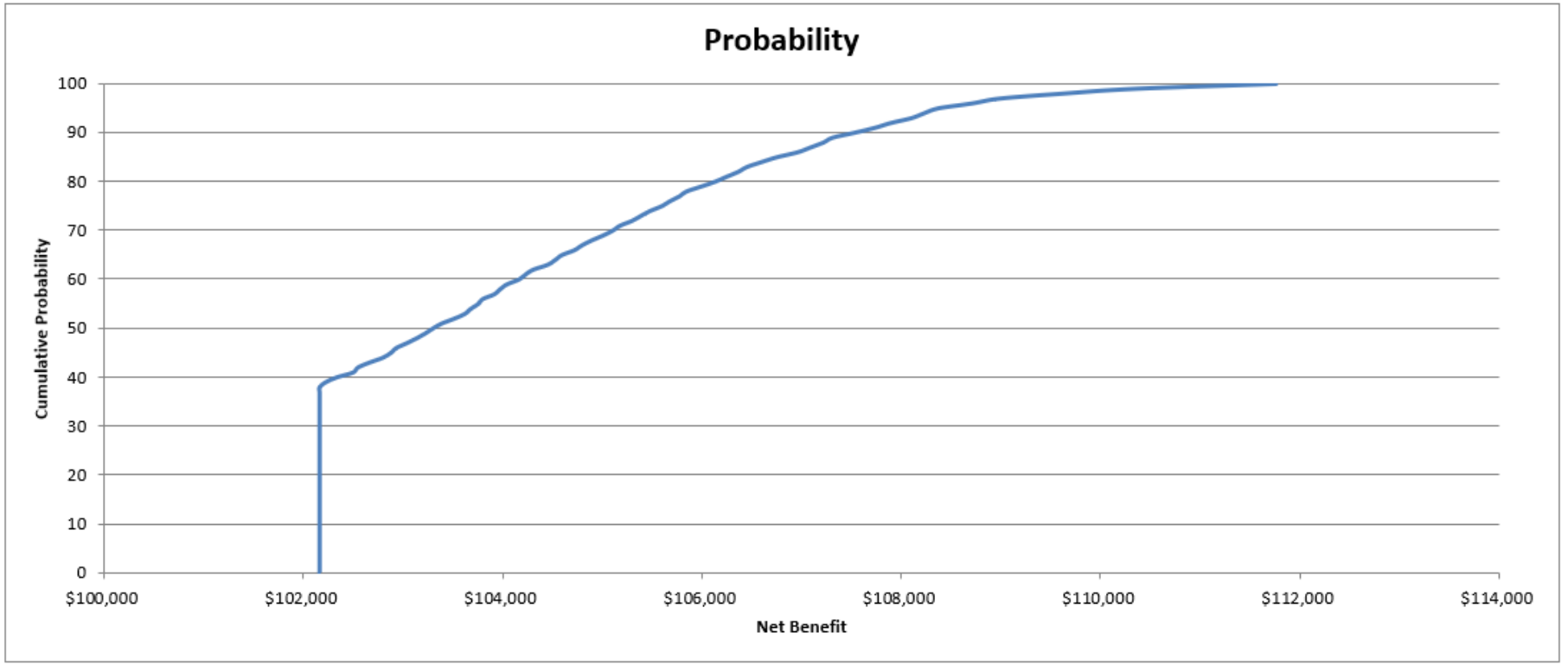
Uncertain Value 1 ☑ Include

Description	Cell
LRP Price Index	D7

Current Value (Most Likely)	200
Minimum Value	180
Maximum Value	220

- Suppose you feel the national LRP steer price could be as high as $220 per cwt. or as low as $180 per cwt.

Scenario Case #3: Insurance Change



Scenario Case #3: Insurance Change

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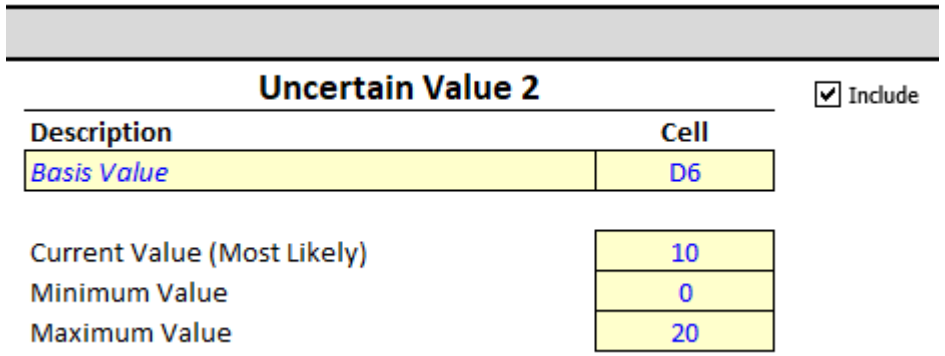
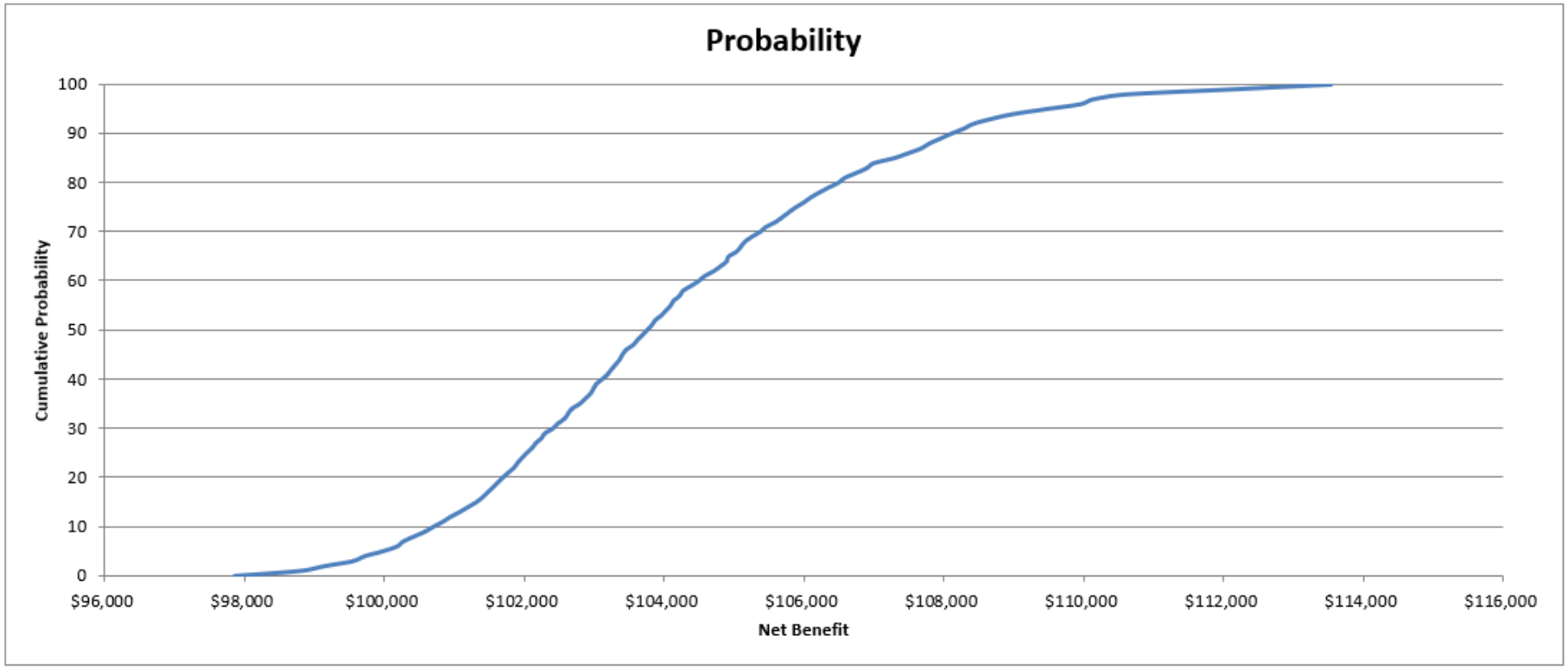


Uncertain Value 2		☑ Include
Description	**Cell**	
Basis Value	D6	
Current Value (Most Likely)	10	
Minimum Value	0	
Maximum Value	20	

- Suppose you feel the basis could be as high as $20 per cwt. or as low as $0 per cwt.

Scenario Case #3: Insurance Change



Conclusion

The Risk Scenario Planning tool:

- Can be a useful tool for analyzing changes to your operation in the presence of uncertainty.
- Represents a better way to handle the presence of uncertainty by thinking in terms of distributions.
- Results in a more informed decision-making process and better decisions for the future of your farming and/or ranching operation.