BARNYARDS & BACKYARDS

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Machine Risk Calculator helps corral expenses

Machinery and equipment is often one of the largest expense categories for a farm or ranch operation.

Many producers do not know their machinery and equipment cost for a given activity. Some expenses, such as fuel, are fairly easy to quantify; calculating individual expenses for a given machine and field activity is more difficult.

The nature of most agricultural activities provides a wide variation in machinery expenses. Incorrect assumptions about expenses could reduce bottom lines.

Machinery Cost Solution

The Machine Risk Calculator (MRC) from RightRisk.org can help producers calculate machinery costs and estimate the risk sensitivity of those costs to changes in various factors.

The tool uses a comprehensive list of related expenses to calculate an overall cost, including expected life (years), repairs, depreciation, housing, insurance, taxes, and annual use (hours).

Producers can estimate expenses for powered equipment, three different implement types, vehicles, powered irrigation equipment, non-powered irrigation equipment, and field operation costs. The MRC generates results based on the data entered, providing estimates of annual and average operating costs for each machine.

The risk analysis section is a unique feature. The tool allows the user to select an expense variable and enter a range (maximum, minimum, and most likely) of values; the MRC tool then generates a probability curve showing a range of possible outcomes.

Allowing a user to account for variability is important. For example, let's say you believe fuel prices will most likely be $1.90 per gallon but could go as high as $2.75 and as low as $1.50. The MRC tool can account for this variability and estimate the corresponding range in machinery operation costs.

Included in the tool are tables showing ranges of reported custom rates and field information for selected activities. These provide the user a range of values for various field operations: size of power unit and implement, as well as accomplishment rate per 10-hour period. The values offer a basis for estimating field operation costs (custom rates), both for comparison to quoted rates and for estimates of operator-completed operations.

Fremont County Example

Fremont County ranchers Jim and Sally Butler* are looking at upgrading windrowers, moving from a self-propelled sickle-type machine to a rotary disc mower. The newer windrower comes at a considerably higher cost ($75,000 compared to $35,000 for their current machine).

Jim believes the rotary machine's increased productivity makes it more favorable than the old one. Sally is concerned the machine's cost per acre will be higher than what they operate now.

In the next installment we will use the MRC tool to compare the two machines.

**The Butler family and their operation are a case study example created to demonstrate RightRisk tools and their applications. No identification with actual persons (living or deceased), places, or agricultural operation is intended nor should be inferred.*

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Table 1. Machine Risk Calculator Entries for Example Disc Windrower

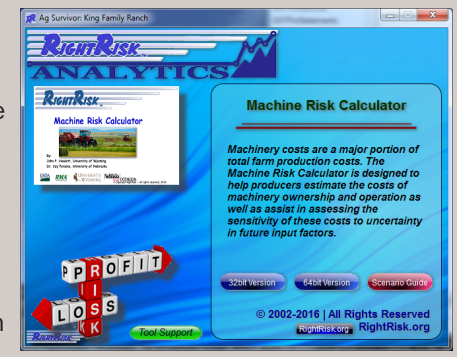
POWERED EQUIPMENT	
Equipment Name	WINDROWER, SELF-PROPELLED
Equipment Options	CAB, AIR, 16FT DISC HEAD
Purchase Price	$75,000.00
Year Quoted	2017
Useful Life (Hours)	5,000
Annual Use (Hours)	500
Maximum Life (Years)	10
Cost Factor 1	0.791
Cost Factor 2	0.091
Cost Factor 3	0
Repair Factor 1	0.06
Repair Factor 2	2.00
Opportunity Cost Rate	6
Tax, Housing & Insur. Rate	2.0
Fuel Price	$2.00
Fuel Type	DIESEL
PTO Horsepower	200
Percent Load Factor	75

Table 2. Custom tillage, planting and harvest operation parameters: power unit, implement, and accomplishment rate estimates from survey results

CUSTOM HARVESTERS*	power unit	implement	10 hours
Hay Harvesting:	94HP	14 feet	56
Swath only, with conditioner	30-250	12-16	20-100
Small square bales - Farm Areas:	85HP	14X18 -	34
Bale only, includes wire/twine	13-115	16X18	15-50
Stack only, in field or short hauls	117HP	62 bales	18
	90-150	55-69	10-32
Round bales, includes twine:	129HP	5 ft wide -	350
Bale only, 1,000-1,200# bales	90-150	6 ft diameter	350-350
Big rectangular bales, includes wire: bale only	203HP	1 Ton	115
	160-225	1-1	70-160
Cube hay:	212HP	U/A	20
Cube from windrow, owner hauls	212-212		20-20
Chop hay:	160HP	12 feet	50
Chop only, dry hay, owner hauls	160-160	12-12	50-50
Swath, chop, short haul, 70% moist	85HP	11 feet	310
	85-85	8-14	70-550
Green chop and short haul	340HP	9 feet	212
	160-450	6-12	35-550
Small-Grain Harvesting:	58HP	16 feet	72
Swath, highest rates for small jobs	10-85	12-25	50-100
Thresh, barley/wheat/oats, low yield	183HP	22 feet	105
	145-245	11-32	40-280
Thresh, barley/wheat/oats, high yield	164HP	20 feet	83
	100-260	11-32	30-200
Bale straw, small squares, includes wire	100HP	14X18	U/A
	100-100		
Bale straw, large rectangular, includes wire	160HP	10 feet	40
	160-160	8-12	40-40

For more information

Visit RightRisk.org and select "Risk Management Tools" from the Resources tab to access the Machine Risk Calculator (MRC) tool. The MRC tool is just one of many risk analysis options from RightRisk.org, including the Forage Risk Analyzer and the Risk Scenario Planner. These and other tools include user guides, downloadable examples, and in-depth risk analyses.



High snowfall, possibly lush spring justify evaluating livestock minerals

Many areas of Wyoming have had abnormal amounts of winter precipitation that could lead to lots of green grass this spring and summer. But all may not be smelling like roses if we do not plan for the flush of green grass.

Grass tetany or grass staggers is a risk that can be more pronounced in years with lush, spring growth. Grass tetany is a metabolic or nutritional deficiency of magnesium in an animal's bloodstream. This disorder is always a possibility when an animal has low magnesium, high potassium levels, or consumes feed with high nitrogen levels.

A number of factors can contribute to grass tetany, including low magnesium levels in grass, rapidly growing grasses, bad weather keeping animals off the grass and generating hunger, ammonia fertilization of grazing areas, and regular lactation demands.

Turning livestock into new pastures, river valleys, meadows, or creek bottoms when they have not had access to lush growth can also generate risk. The old adage "feed them before you turn them out" can be helpful with avoiding initial grass tetany risk.

Supplements May Lower Risk

The physiological signs of grass tetany are often not noticed until an animal is down. These signs can include wild stares with erect ears, grazing away from the herd, irritability, twitching, incoordination followed by staggering, coma, and death.

Most of our Wyoming producers intentionally feed high magnesium supplements to avoid grass tetany. Cattle should consume at least 1 ounce of magnesium daily, but they do not retain it long because it interacts with so many other bodily functions. Livestock nutritionists recommend a minimum of 12 percent actual magnesium, and not a magnesium compound, within livestock supplements.

Ways to Lower Danger

You can minimize grass tetany risk by:

- Holding high-risk animals off lush grass until it is at 4-leaf stage, about 4-6 inches tall.
- Provide a magnesium supplement at least two to three weeks before grazing lush grass and until it dries out.
- Feed low-nitrogen legume hay or mixed grass/legume hay.
- Avoid grazing recently fertilized fields.
- Closely monitor high-risk animals when grazing lush areas.

For animals that demonstrate signs of grass tetany, a subcutaneous injection of magnesium sulfate can be introduced into an animal's bloodstream and make a difference within 15 minutes. Visit with your veterinarian about this treatment.

Contact your local UW Extension agriculture or rangeland educator for more information on grass tetany. Shrinking livestock profit margins and needing every head to survive and produce well justifies extra attention to the nutritional balance of our livestock.

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