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Using the Machinery Risk Calculator from RightRisk.org – Part I

One of the most important, yet often overlooked, aspects of risk management planning in production agriculture is estimating accurate operating costs for various machinery and equipment.

Because these costs represent one of the largest categories of expense, an off-base estimate can skew the entire planning process. Educated guesses for machinery and equipment expenses lead to flawed budgets, which in turn could result in inaccurate values used to determine crop insurance or other risk management analysis.

Having an accurate understanding of machinery ownership and operation costs is important whether for your situation or for custom work.

Machinery Risk Calculator from RightRisk.org

The academic professionals at RightRisk.org have designed the Machinery Risk Calculator to help producers determine total machinery ownership and operating costs and, in addition, evaluate the risk sensitivity of those costs to changes in input factors.

The tool uses a comprehensive list of related expenses to calculate overall cost, including expected life values, repairs and depreciation, housing, insurance, taxes, and annual use. The tool allows users to analyze costs on powered equipment (tractors, windrowers, etc.) and up to three different implements – as well as vehicles, powered irrigation equipment, non-powered irrigation equipment, and actual field operation costs.

Users enter information for a particular machine, and the calculator generates charts showing annual costs and average operating costs based on the data entered.

Results include an estimate of risk sensitivity for the particular machine or activity on selected input variables – the probability of a selected cost per acre being at or lower than a selected value.

The user can either enter their own machinery data or utilize tables (included in the tool) showing ranges of reported rates and information for the selected activities as a basis for analysis.

The information in Table 7 (right) of the calculator is divided into three categories: size of power unit, size of implement, and acres per 10 hours of use (accomplishment rate).

Swathing Hay Example

Median values, as well as the range of values reported, are shown for each category. As an example, suppose a grower was trying to determine the operating cost for swathing hay. We find the values for swathing to be 94 horsepower, 14 feet harvesting width, and 56 acres covered per 10 hours of use. These data were compiled from operators responding to custom operator surveys conducted by the University of Wyoming.

In the next installment, we look at how to use this information to estimate machinery ownership and operating costs using the Machine Risk Calculator.

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		Size of power unit	Size of implement	Acres per 10 hours
		Size of power unit	Size of implement	Acres per 10 hours
CUSTOM HARVESTERS*				
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	Oct-85	12-25	50-100
	Thresh, barley/wheat/oats, low yield	183HP	22 feet	105

Table 7. Custom Tillage, Planting and Harvest Operation Parameters: Power Unit, Implement, and Accomplishment Rate Estimates from Survey Results, continued.*

PoweredIrrigation | NonPoweredIrrigation | FieldOperation | MACHFACTORS | MACHSPEEDEFF

Reported Values for Hay Harvesting from Table 7 in the Machinery Risk Calculator

For more information

Visit RightRisk.org to begin using the Machinery Risk Calculator; simply select "Risk Management Tools" from the Resources tab and follow the link. The page includes a slide presentation on the tool, as well as a user guide. RightRisk.org has numerous resources including producer profiles, budgeting, other risk management tools, and courses to assist producers no matter what stage they are at in their risk management planning.

UW researchers study alfalfa stand rejuvenation options

Researchers from the Sheridan Research and Extension Center (ShREC) and the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) near Lingle are cooperating on an alfalfa renovation project.

Hay is a very important crop for Wyoming, accounting for a total production value of $317 million in 2014. Alfalfa hay accounted for 490,000 harvested acres with a 2.6 ton/acre yield in 2014 (Wyoming Agricultural Statistics). With staggering numbers like these, it's easy to see producers in the state lean heavily on alfalfa as a production crop and as a high-quality food source for cattle.

There comes a time in the life of any alfalfa stand when a producer needs to make important decisions about how to get the greatest value out of it. Hay fields are usually renovated by primary and secondary tillage or by applying herbicide followed by no-till seeding.

Some producers have historically performed various types of management practices, ranging from mild harrowing to moderately aggressive tillage at different times during the stand life in an attempt to rejuvenate existing stands.

At what point do these operations truly add value for the alfalfa stand and what level of regrowth should you expect?

These are the types of questions this study hopes to address: compare the effectiveness of various mechanical treatments with conventional hayfield renovation techniques and evaluate the costs of each practice.

Mechanical treatments will include harrowing, aeration, and cultivation, while the conventional techniques will include herbicide, plowing, and reseeding with a cover crop. Researchers hope some of these low-cost mechanical methods can be used to improve productivity of an aging alfalfa stand.

This topic has been of interest to Sheridan area producers, but the study hopefully will have statewide application. The research will be conducted in the Sheridan area with farm manager Dan Smith at ShREC being the primary contact. Mike Albrecht (malbrec1@uwyo.edu), Brian Mealor (bamealor@uwyo.edu), and I will be assisting with the research. Albrecht and Mealor can be reached at (307) 673-2856.

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