

BARNYARDS & BACKYARDS

Financial tools help analyze risks for multiple enterprises

Many Wyoming farms and ranches have multiple enterprises in their individual operations.

Diversification in the form of multiple enterprises is one way to manage the inherent risk in production agriculture, whether a combination of crop and livestock enterprises or a custom business to complement an existing enterprise.

Having an in-depth understanding of how multiple enterprises fit together in your business as part of this overall risk management strategy is important. For example, a cow-calf operation may include an alfalfa hay enterprise to provide feed for their cattle, but that may not be as feasible as simply buying hay if the cost of production is too high or requires too much capital.

Enterprise risk analysis, or the process of evaluating and managing risk at the enterprise level, is an important part of a comprehensive risk management plan. This analysis can help producers gather accurate information to help determine profitability of business enterprises by showing individual net revenue and their net effects on the entire business.

Accurate enterprise analysis can help managers learn how to correctly allocate resources, determine break-evens, cut costs, and manage risks.

The academic professionals at RightRisk.org have assembled a

comprehensive online module entitled Enterprise Risk Analysis available free to the public. This material is designed to provide the user a broad understanding of the planning and overall risk management involved in enterprise analysis.

Module Components

The module contains an interactive, self-study component, a recorded webinar (including presentation slides and a question-and-answer session), and an e-book for further explanation of the topics addressed in the self-study course. In addition, the module offers two case-study examples: a farm and a ranch situation.

The course begins by defining an enterprise in an agricultural context and demonstrates what should be included in a financial evaluation of those enterprises, including all receipts and expenses.

Defining what constitutes an enterprise is relatively simple for certain operations. For example, a farming operation that raises three or four different crops has easily defined enterprises, but a combination crop and livestock operation with a diverse mix of activities (such as raising feed, grazing on aftermath, and backgrounds cattle) may not be as easy to define.

Another challenge in enterprise analysis is outlining all non-cash items (such as feed transferred to another

enterprise, depreciation, and other costs) and properly allocating them over the enterprises. The ERA course helps participants understand how to properly describe and evaluate their enterprise mix.

The ERA course features a thorough discussion of risk – defined as future events for which the outcome is uncertain. Course participants learn the five main sources of risk in an agricultural business and how to qualify those for their own situations.

Risk management is examined at the strategic and enterprise levels, with a specific focus on the enterprise level.

Management Considerations

A management process for addressing risk is discussed extensively and is depicted as circular in nature; frequently monitoring and reviewing strategies, objectives, and results is important to effectively manage the risk involved in each enterprise.

The process includes establishing the context for the risk management of each enterprise: both the internal context (resource inventory, risk tolerance, and which enterprise) and the external context (legal/regulatory environment, stakeholder perceptions, market conditions).

Risk assessment is another major focus of the approach, including risk identification, risk analysis, and evaluation. Within this stage, emphasis

is given to better understand the sources of risk and corresponding levels of control; identifying threats, consequences, likelihood of occurrence, and existing strategies; and evaluating risk warranting treatment and selecting a strategy.

Strategies to evaluate and manage the threats of greatest concern can be properly done once risks are identified and evaluated. Treatment is implemented to address the risk at an appropriate level, with consideration given to the options available, as well as perceived effectiveness (both qualitative and quantitative).

Appropriate risk management should be proactive – to confront potential threats before they become unmanageable. The approach is more likely to succeed where management follows appropriate strategies to communicate and consult with both internal and external stakeholders, in addition to implementing methods for monitoring and reviewing effectiveness over time.

James Sedman is a consultant to the Department of Agricultural and Applied Economics in the University of Wyoming College of Agriculture and Natural Resources, and John Hewlett is a farm and ranch management specialist in the department. Hewlett may be reached at (307) 766-2166 or hewlett@uwyo.edu.

Pump inefficiency may be diluting your profits But there are ways to improve

You may be spending more money than necessary on energy expenses if you have not recently evaluated your irrigation pumping plant efficiency.

There are several reasons a pumping plant might run inefficiently, including:

- Engine may need a tune-up.
- Engine is improperly sized for the job.
- Wear on the impeller due to pumping sand.

All this can lead to costing extra money during the irrigating season.

The History

A 1993 study of pumping plants across Kansas found irrigation systems were using about 40 percent more fuel than they would if properly sized and maintained. A similar study in Colorado, Nebraska, and Wyoming in 2004 found pumping plants running on electricity used about 25 percent more energy than necessary.

The USDA National Agricultural Statistics Service reported an average pumping expense of \$43.44 per acre in Wyoming in 2013 for pumps running off electricity. Assuming an efficiency of 75 percent, potential savings could equal (\$43.44 x 0.25) \$10.86 per acre. As this is an average, savings could be even more if efficiency is improved.

Evaluating Efficiency

Nebraska researchers tested 180 farmer-owned pumping plants in 1980-81 to test a new set of rating criteria they had developed. Out of this effort, the new Nebraska Pumping Plant Performance Criteria (NPC) were adopted, and the average pumping plant performance was found to be 77 percent of the NPC. In other words, the average pumping plant in Nebraska was using (100% / 77%) 1.3 times as much energy as the NPC stated.

To find the efficiency of your system, determine the water horsepower (WHP), or the amount of work performed by the pumping plant. This is found with the following:

$$Whp-h = \frac{Flow Rate \times [(Pressure \times 2.31) + Lift]}{3960}$$

Where:

- Whp-h = water horsepower-hours of work produced by the pumping plant

- Pressure = pump outlet pressure, psi
- Lift = water level in the well during pumping, ft.
- Flow Rate = pump flow rate measured at the outlet, gpm

Once found, the Whp-h can be compared to the NPC to determine efficiency.

If a water meter is not installed on a system, then another temporary device must be installed to determine the flow rate, and thus the Whp-h of the pumping plant. Contact a local, reputable well driller and ask if they are able to perform a short-term pumping plant efficiency test.

Go to <http://bit.ly/pumppformance> for more on the NPC. You will find a step-by-step guide to help determine the efficiency of your pumping plant. The guide will also estimate the potential cost to bring the pumping plant up to standard. Comparing different interest rates, the potential repayment period for your investment can be determined.

There's an App for That

The University of Nebraska-Lincoln has developed an app that can do the calculations for you. You only need to input numbers for pumping lift, pressure at the discharge, acre-inches of water pumped, fuel price, and total fuel used. The app can calculate the pumping plant performance rating, based on the NPC.

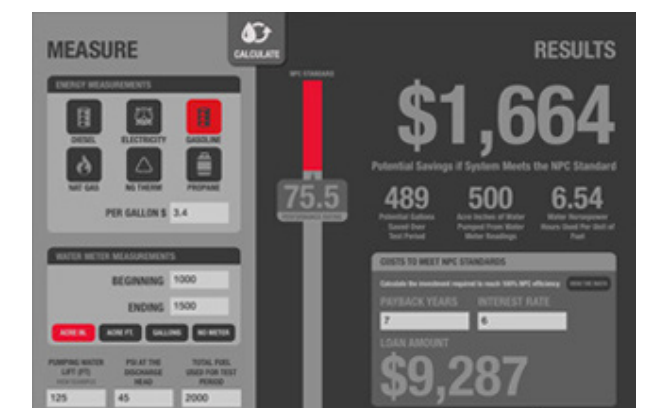
The app will also estimate the cost to bring the pumping plant back up to standard as well as the number of years to pay back the investment, at various interest rates. The app can be found on iTunes (\$3.99) or the Google Play Store (\$1.99). Results are anonymous but can be captured and emailed to yourself.

Don't forget to also consider your pumping plant as you start thinking about getting that irrigation system up and running this spring. You may just find an opportunity for some big savings.

Caleb Carter is a University of Wyoming Extension educator based in Goshen County and serving southeast Wyoming. Contact him at (307) 532-2436 or at ccarter13@uwyo.edu and see his blog at www.uwyoextension.org/highplainscropsite.



Sprinkler irrigation in northern Wyoming



A description of this University of Nebraska-Lincoln pump efficiency app is at <http://bit.ly/pumpefficiency>.

Help Resources Topics

Risk Management Process

Click on each of the steps to see an overview of each step.

Internal Context

- Resource inventory
- Risk tolerance
- Identify the enterprise

PREV NEXT

Help Resources Topics

Summary

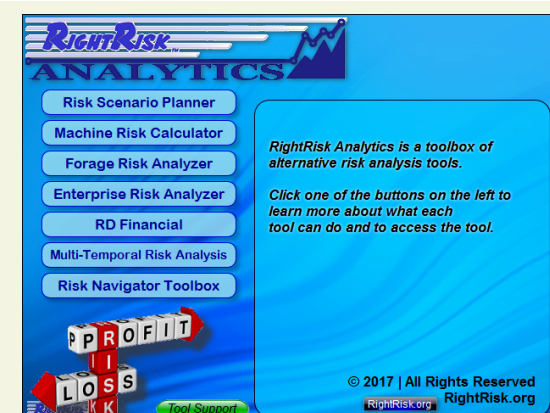
- A proactive approach to enterprise risk management enables the active farm or ranch management team to:
 - Encourage proactive rather than reactive management
 - Improve the timely identification of opportunities and threats
 - Comply with relevant legal and regulatory requirements
 - Improve financial reporting
 - Improve stakeholder confidence and trust
 - Establish a reliable basis for decision making and planning across the enterprise
 - Effectively allocate and use resources for risk treatment as needed
 - Improve operational effectiveness and efficiency
 - Minimize enterprise losses
 - Improve farm/ranch resilience in the face of uncertainty

PREV NEXT

For more information

Access the Enterprise Risk Analysis module at RightRisk.org and select from the "Courses" tab on the menu bar.

RightRisk.org has numerous other online courses and user-friendly tools to assist with risk management. Check the RightRisk Analytics toolbox that contains seven interactive tools covering a wide range of risk management topics such as enterprise budgeting, machinery costs, and others.



The Enterprise Risk Analyzer Tool: Part of The RightRisk Analytics Toolbox

The ERA tool is just one of the risk analysis tools in the RightRisk Analytics toolbox. Users can enter their income and expense information for their business (including all enterprises), then use the tool to allocate income and expenses, and finally determine profitability of each enterprise and compare against other enterprises.

- Point your browser to RightRisk.org
- select the Resources tab
 - select Risk Management Tools



Floor irrigation near Powell

UW Extension bulletin details Wyoming irrigation methods, regulations

A new bulletin from the University of Wyoming Extension helps answer irrigation questions new or existing landowners in Wyoming might have.

Extension educators and specialists and the mediation coordinator in the Wyoming Department of Agriculture collaborated to produce the 40-page "Wyoming Small Acreage Irrigation," B-1306.

The guide is divided into four sections.

"Can I Irrigate?" explains how to determine if a property has a water right, figuring how much water does the water right entitle the irrigator, how water rights may work within a subdivision, and a brief description of Wyoming water law.

"How can I irrigate?" discusses various irrigation methods used across the state, their pluses and negatives, and which irrigation system might best fit certain situations.

"Should I irrigate?" presents when to irrigate and how much water to apply.

"Irrigation Conflicts in Your Neighborhood," gives points to consider if a landowner finds himself or herself in a water conflict.

The guide is at University of Wyoming Extension and select conservation district and irrigation district offices across Wyoming. The publication is also available for free viewing or download by going to www.uwyo.edu/uwe, click the Find a Publication link, and enter the title or number into the search field. The bulletin is in pdf, HTML, and ePub formats.