

BARNYARDS & BACKYARDS



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Evaluating Enterprise Net Returns

Enterprise diversification is a common strategy used by managers of Wyoming farms and ranches for many reasons.

Diversification is often one of the simplest and most effective forms of risk management. Multiple enterprises can spread production risk (not placing all your eggs in one basket) and can lower costs by complementing one another, such as raising your own hay for livestock instead of purchasing from outside sources.

Knowing how these enterprises fit together in the overall farm or ranch business picture is important for business managers. Producers have a tendency to evaluate operations as a whole instead of examining each enterprise on its own by allocating all associated revenues and expenses.

Enterprise analysis outlines the profitability of each enterprise and its overall effect on net income when completed correctly. In addition, this type of analysis describes how each enterprise compares to others in terms of profitability, resource use, as well as break-even values showing where to cut costs and further manage risks.

ERA Tool from RightRisk.org

In an earlier article, we highlighted a diversified southeast Wyoming farm and ranching operation owned by Jason and Melinda Collins.* Their enterprise mix revolves around a commercial cowherd, with irrigated corn for silage, alfalfa and wheat. They background calves as an additional enterprise. We entered the Collins' Internal Revenue Service (IRS) Schedule F information into the ERA tool, as well as basic enterprise information including a range of prices and yields for each.

The next step in using the ERA tool is to enter the necessary information under the Schedules tab. This comprehensive section includes non-cash revenue and expense items, and it allows the user to enter all asset and liability data as well, Table 1.

The Collins have some prepaid expenses (seed \$3,375), along with a coming wheat crop that is accounted for in this section. They have last year's calves on feed accounted for in Schedule E, and their cowherd is listed under Schedule F. Schedule G contains their machinery and equipment.

When calculating accumulated depreciation, if specific schedule information for a particular asset is not known, use the straight-line method (as we have for this example). Real estate and improvements are accounted for in Schedule H.

Enterprise Allocation with the ERA Tool

Under the Allocation tab is where we allocate all previously listed cash and non-cash income and expenses to the various enterprises. The ERA tool summarizes the revenue and expense categories and lists any unallocated amount in red in a separate column. Most revenue categories are easily allocated: for example, the Collins' wheat sales at \$15,000 and alfalfa hay sales at \$120,000. Revenue items, such as a cooperative dividend or the like, may not be as easy to allocate. One way to handle such categories is to allocate them equally across all five enterprises. In another case, we assume that the government payment revenue is for the corn and wheat acres and assign the revenue accordingly.

In the expense section, it is important to be as accurate as possible when allocating expenses to the various enterprises. In other words, if it is possible to link indirect expenses with a specific enterprise, it may be worth taking time to do so. Otherwise, use another method such as allocating the expense equally across the enterprises. Taking time to refine your estimates will provide for more accurate breakeven analysis further on.

Following this approach, the Collins' fertilizer, seed and repair bills are easily allocated to the alfalfa and crop enterprises,

Continues next page.

Table 1. Enterprise Risk Analyzer Schedules Tab.

Schedules	NOTE: Versions 1.10 and higher use the same values in both beginning and ending schedules. Click the button to the right of the schedule name to toggle on/off schedules needed for non-cash revenue and expense items.
Prepaid Expenses and Supplies	(Schedule A)
Investment in Growing Crops	(Schedule B)
Receivables Accounts, Notes, etc.	(Schedule C)
Crops Held for Sale or Feed	(Schedule D)
Livestock Held for Sale (all)	(Schedule E)
Breeding Livestock (all)	(Schedule F)
Machinery, Trucks, Pickups, etc.	(Schedule G)
Real Estate (all)	(Schedule H)
Farm Accounts Payable	(Schedule I)
Notes Payable	(Schedule J)
Intermediate Loans	(Schedule K)
Long Term Loans	(Schedule L)
Taxes- Real Estate, Property, etc.	(Schedule M)

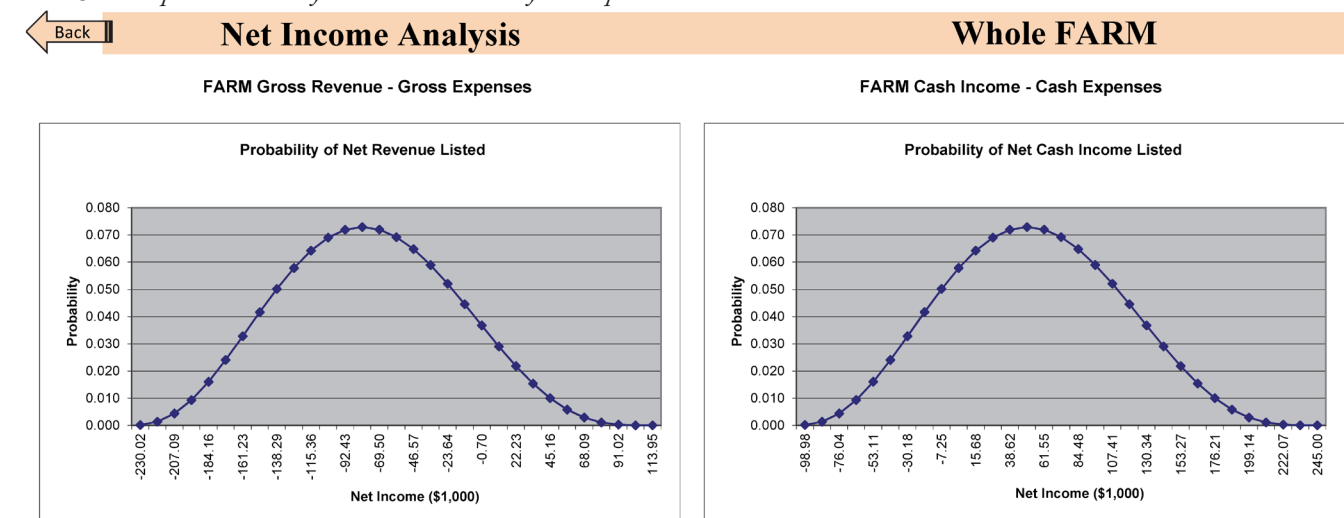
Table 2. Enterprise Risk Analyzer Net Income Analysis Tab - Collins Ranch Data.

	WHOLE FARM	Alfalfa Hay	Corn Silage	Wheat	Cow-calf	Background Calves
FARM REVENUE						
TOTAL FARM INCOME - CASH	350,300.00	85,300.00	40,300.00	16,800.00	162,800.00	45,100.00
TOTAL NON-CASH INCOME ADJUSTMENTS						
GROSS FARM REVENUE	350,300.00	85,300.00	40,300.00	16,800.00	162,800.00	45,100.00
FARM EXPENSES						
FARM EXPENSES - CASH	296,500.00	51,900.00	40,150.00	21,650.00	109,900.00	72,900.00
FARM EXPENSES - NON-CASH EXPENSE ADJUSTMENTS	131,046.00	38,384.20	16,961.20	9,587.20	41,446.20	24,667.20
GROSS FARM EXPENSES	427,546.00	90,284.20	57,111.20	31,237.20	151,346.20	97,567.20
NET FARM INCOME FROM OPERATIONS	(77,246.00)	(4,984.20)	(16,811.20)	(14,437.20)	11,453.80	(52,467.20)

Net Income RISK Analysis	WHOLE FARM	Alfalfa Hay	Corn Silage	Wheat	Cow-calf	Background Calves
NET Enterprise CASH INCOME (cash income - cash expenses)						
Minimum	(98,975.00)	(12,600.00)	(20,850.00)	(12,725.00)	(200.00)	(52,600.00)
Most Likely	53,800.00	33,400.00	150.00	(4,850.00)	52,900.00	(27,800.00)
Maximum	245,000.00	92,400.00	30,150.00	2,650.00	120,400.00	(600.00)
NET Enterprise REVENUE (gross revenue - gross expenses)						
Minimum	(230,021.00)	(50,984.20)	(37,811.20)	(22,312.20)	(41,646.20)	(77,267.20)
Most Likely	(77,246.00)	(4,984.20)	(16,811.20)	(14,437.20)	11,453.80	(52,467.20)
Maximum	113,954.00	54,015.80	13,188.80	(6,937.20)	78,953.80	(25,267.20)

Probability Analysis (click button at right)

Table 3. Enterprise Risk Analyzer Net Income Analysis Graph - Collins Ranch Data.



For more information

The Enterprise Risk Analyzer (ERA) tool is one of many risk management resources available at RightRisk.org. The ERA tool is designed to help ag decision makers evaluate the enterprise mix – both for an individual enterprise and on a whole farm basis.

ERA allows users to enter and allocate revenue and expense data and allocate across enterprises, as well as perform effective risk analysis. The web site includes simple instructions and preloaded farm and ranch examples, highlighting how to use the tool. Simply visit RightRisk.org, and select Risk Management Tools from the Resources tab.



For sheep producers, a trace of trace minerals worth a pound of cure

As summer progresses and forage quality declines, we are quick to think of shortfalls in protein and energy in nutritional management yet tend to overlook micronutrients such as trace minerals. Even though these are required in relatively smaller quantities than protein and energy, they are essential for basic physiological functions and should be prioritized.

Essential macro minerals, including calcium, chloride, magnesium, phosphorus, potassium, sodium and sulfur, make up major components of skeletal and nervous systems and are usually expressed as a percentage of the diet. In contrast, micro minerals, or trace minerals, are required in relatively small quantities – parts per million (ppm) or milligrams per kilogram (mg/kg). These include manganese, copper, zinc, selenium, iron, cobalt, iodine and fluorine. Even though these are required in smaller quantities, they play key roles. For example, cobalt is a precursor for production of vitamin B12 in the rumen, which is essential for proper rumen fermentation – a small but mighty role.

Results from a recent Montana study found that 33 percent of sheep producers failed to consistently provide a complete trace mineral and many of their flocks were largely deficient or marginally deficient in selenium and zinc. After becoming aware of these trace mineral deficiencies, many of these producers resumed trace mineral supplementation and anecdotally recounted marked improvements in lamb survival, fewer open ewes, increased wool quality and other benefits.

There is no denying the essentiality of trace minerals, but the extent of production losses can vary across ranches. Clinical signs of trace mineral deficiency are often visibly noticeable, such as white-muscle disease caused by selenium and vitamin E deficiency, which results in lamb paralysis and failure to stand. Often subclinical signs, such as decreased appetite, decreased immune function and poor conception, are not correctly attributed to a specific trace mineral deficiency and are ignored.

Just because not providing a complete trace mineral doesn't result in a complete "wreck," doesn't mean that production losses aren't occurring. Furthermore, as sheep

genetics improve, it's important that failure to provide a mineral isn't limiting the genetic potential of our sheep.

A very real challenge to cost-effective trace mineral supplementation is the reality that sheep will overcome a mineral if given the opportunity. Research conducted at Montana State University in 2010-2011 showed that whether in a dry-lot or grazing scenario, ewes consumed on average two ounces per head per day instead of the one-fourth ounce target intake recommended on the label. Assuming mineral cost of approximately \$1,100/ton, a ewe who overconsumes two ounces a day across 365 days a year will cost \$24.82 per head, whereas if she consumes the recommended one-fourth ounce per day, the cost will be \$3.10 annually.

One strategy to combat overconsumption is to blend in additional white salt. Standard iodized salt is very cost effective at \$200/ton – or less than one cent per ounce – and is effective in limiting mineral intake. Take care to avoid overdiluting trace minerals with white salt; working with a nutritionist can help.

Another option is to limit the frequency of feeding. For example, if ewes consume seven days' worth of mineral in one day, do not refeed for another seven days, remembering to provide iodized white salt at all times. Instances of consuming mineral rapidly in one standing might be reduced with additional bunk space or mineral feeders. The importance of providing fresh, clean water with all trace mineral supplementation cannot be overestimated.

Evaluating and reevaluating nutritional management is an important practice, given feed-related inputs represent at least half of variable costs on many sheep enterprises. Trace minerals represent a smaller proportion of the cost but have significant impacts on sheep well-being and productivity.

May the lambs look even better going on the truck this year!

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Important Trace Mineral Reminders

- Provide iodized white salt (sodium chloride) year-round. Ewes consume 0.2 to 0.5 oz per day, for of a cost of approximately \$1 for 365 days. Inadequate consumption reduces water and feed intake, resulting in decreased milk production and growth.
- Prioritize and optimize trace mineral intake to coincide with physiologically demanding production periods, e.g., breeding season, pregnancy and early lactation.
- Be aware that as cool-season grasses reach maturity and decline in quality, so do the solubility and overall content of some trace minerals. For example, zinc showed a 50 percent decline from spring to late summer in many cool-season grasses.
- Monitor consumption. Poor placement of mineral or exposure to weather may result in under-consumption. Place mineral feeder close to water source to enhance visibility and encourage consumption.
- Provide mineral weeks prior to weaning so ewes can teach lambs to consume mineral. This can improve lambs' trace mineral status in advance of stressful weaning and shipping events.
- Read label information and work with nutritionist/supplier to better achieve target intake of mineral. Under- or overconsumption of mineral is not uncommon and requires fine-tuning.



Evaluating enterprise net returns, continued.

as are the veterinary and feed bills to the livestock enterprises. Depreciation and taxes are more difficult to assign to an enterprise, so we have allocated the expenses equally across the five enterprises. Here, we might also have weighted the distribution on the number of acres or number of head, on a percentage of total revenue or another approach to more accurately assign these expenses.

Net Income Analysis

The ERA generates a series of analyses for net income, both on an enterprise and whole-farm level, using the data previously entered. The tool generates a value for minimum, most likely and maximum, using the range of prices and yields entered under the general tab.

Results are summarized under the Net Income Analysis tab. For our example, Net Enterprise Revenue (gross revenue minus gross expenses) ranges from -\$230,021 to \$113,954 with the most likely net income at -\$77,246 across all enterprises, Table 2.

Cow-calf is the only enterprise that results in a positive net income for the most likely estimate \$11,454. The other enterprises have negative minimum and most likely estimates, while two of the four have positive maximums. While a positive value for the most likely

estimate may be encouraging, keep in mind that the information entered describes a wide variation when we consider the range between the minimum and maximum values.

Clicking the graph button for each enterprise provides the associated probability analysis. On a whole farm basis, the Collins are most likely to earn a net revenue somewhere between -\$92,430 and -\$69,500, Table 3.

In the next installment we will investigate the break-even analysis generated by the ERA tool and discuss how the Collins might use the information in their decision-making process.

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

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