

BARNYARDS & BACKYARDS

Risk analyzer tool evaluates lease arrangements

In a previous installment Platte County producers Ryan and Lonna Johnson* were considering a potential forage lease from a neighboring landowner.

This neighbor is considering converting an old alfalfa stand to irrigated pasture rather than rotate back to corn and other row crops. The landlord believes the potential lease arrangement could benefit both parties, they just need to work out the details.

Information in the Forage Risk Analyzer (FRA) tool is divided into six broad resource categories (one tab for each), including land, livestock, housing, stored feed, labor, and machinery (there would be no stored feed or housing in this example). After the information has been entered, the Summary worksheet (Summary tab) provides an estimate of the total costs and benefits organized as resource net returns to land, livestock, housing, and stored feed.

Total net return generated for the land resource category is a loss of \$35,925. This total includes the expenses for fencing and water resources, Table 1.

The livestock resource net return totals \$8,500. This total includes revenue estimated for changes in calf inventory value at \$50,500 (beginning calf value at \$500 per head; ending value at \$750 per head; death loss 2 head), cow death loss totaling -\$2,000, annual depreciation for the cows at -\$28,000, as well as annual livestock expenses of -\$12,000.

Allocating with the FRA Tool

The capacity to allocate resource costs and returns between suppliers and users (up to three of each type) under the Allocation tab is one of the more useful features of the FRA tool. The allocation feature allows the Johnsons and the neighboring landlord to fully outline and understand what each party is contributing to the potential lease agreement. The FRA tool shows the total amount of unallocated expenses (positive values black; negative values red) on the far right of the allocation screen, encouraging the user to ensure all costs and benefits are fully split-out.

The Johnsons would be responsible for the lease payment of \$16,800 and fencing costs of \$4,825. When we allocate the water expenses, the neighbor would cover the expenses associated with irrigation water (\$13,400), and the Johnsons would be responsible for the stock water expenses (\$900).

Moving down the allocation worksheet, the Johnsons would be responsible for all expenses involved with the livestock under this lease (\$42,000 total; \$28,000 in depreciation). We would also take into account the gain in the value of the livestock over the grazing period; the calves on the cows grew to marketable size (500-pound gain) by the end of the lease. The landlord would receive \$16,800 of this revenue via the lease payment, and the Johnsons would retain the balance, \$33,700.

FRA Tool Analysis Features

The Analysis tab of the FRA tool allows users to further evaluate what each party would contribute and/or gain under a potential lease. The Resource Net Return Analysis Worksheet (Analysis tab) reports the summarized and allocated resource costs and returns: in our example, the landlord would receive 9.9 percent of the net return and the Johnsons 90.1 percent, Table 3.

Here we see the landlord net return totals \$3,400 after covering irrigation water expenses. The Johnson's net return is calculated at -\$30,825, mostly as a result of assigning the entire year's worth of cow

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Table 1. FRA Resource Net Return Summary for Example Forage Lease.

Resource Net Return SUMMARY	
Land Resource Net Return:	
Native Rangeland	\$0.00
Improved Pasture	\$0.00
Sub-Irrigated Meadow	\$0.00
Irrigated Meadow	\$0.00
Hay Land	-\$16,800.00
Crop Land	\$0.00
Fence Resources	-\$4,825.00
Water Resources	-\$14,300.00
Property Taxes, and Other Land Expenses	\$0.00
TOTAL	-\$35,925.00
Livestock Resource Net Return:	
Livestock Revenues:	
Increased Livestock Inventory Value -	\$50,500.00
Livestock Expenses:	
Annual Livestock Expenses	-\$12,000.00
Breeding Livestock:	
Reduced Inventory Value -	-\$2,000.00
Depreciation -	-\$28,000.00
Market Livestock:	
Reduced Inventory Value -	\$0.00
TOTAL	\$8,500.00

Table 2. FRA Resource Expense Allocation Worksheet for Example Forage Lease.

Resource Expense Allocation Worksheet		Supplier #1	Supplier #2	Supplier #3	User #1
Amount to Allocate		Landlord			Ryan and Lonna Johnson
LAND Resource:					
Native Rangeland	-				
Improved Pasture	-				
Sub-Irrigated Meadow	-				
Irrigated Meadow	-				
Hay Land	(16,800)				(16,800)
Crop Land	-				
Fence Resources:					
Fence Annual Expenses	(200)				(200)
Fence LABOR Expenses	(400)				(400)
Fence MACHINERY and EQUIPMENT Expenses	(4,000)				(4,000)
Fence FIXED Expenses	(225)				(225)
Water Resources:					
Water Annual Expenses	(6,000)	(5,800)			(400)
Water LABOR Expenses	(700)				(700)
Water MACHINERY and EQUIPMENT Expenses	(4,250)				(4,250)
Water FIXED Expenses	(3,350)				(3,350)
Property Taxes and Other Land Expenses	-				
Total LAND Resource Expenses:	-35,925	-13,400	0	0	-22,525
LIVESTOCK Resource:					
Annual Livestock Revenues:					
Change in Breeding Livestock Inventory (increased value) -	-				
Change in Market Inventory (increased value) -	50,500	16,800			33,700
Total LIVESTOCK Resource Revenues:	50,500	16,800	0	0	33,700
Annual Livestock Expenses:					
Supply Expenses	(200)				(200)
Veterinary Expenses	(1,500)				(1,500)
Medical Expenses	(5,000)				(5,000)
Other Expenses #1	-				
Other Expenses #2	-				
Livestock LABOR Expenses	(500)				(500)
Livestock MACHINERY and EQUIPMENT Expenses	(4,800)				(4,800)
Breeding Livestock:					
Change in Inventory (reduced value) -	(2,000)				(2,000)
Depreciation	(28,000)				(28,000)
Market Livestock:					
Change in Inventory (reduced value) -	-				
Total LIVESTOCK Resource Expenses:	-42,000	0	0	0	-42,000

A new, smelly bug comes to Wyoming

Wyoming is usually one of the last states to get invaded by non-native insect pests.

This time we are one of the first six states to get a new insect pest, originally from the areas of Europe and Asia that can grow elm trees. The elm seed bug (*Arocatus melanocephalus*) was first detected and reported in the United States in 2012 in southwest Idaho and has since spread into Oregon, Washington, Utah, and made a long-distance jump to Michigan.

World appears to be ground zero for the elm seed bug's Wyoming invasion with several reports of masses of the bugs appearing on houses and elm tree trunks on recent warm March days.

The only good news is that elm seed bugs are not serious agricultural pests. The elm seed bug lives up to its common name; elm tree seeds are its preferred food. This is similar to the food preference of their distant American relative, the boxelder bug. Their favorite food is the seeds of boxelder trees.

The bad news is that many Wyoming folks have Siberian elm trees as shade trees and in windbreaks around their homes and farm yards. This also means people who have never had the unpleasant experience of an invasion of boxelder bugs into their homes might now get invaded by elm seed bugs. Additionally, if there are boxelder and elm trees nearby, you might have home invasions of both.

Elm seed bugs will try to take shelter in buildings when it gets hot and dry in the summer and when cold weather starts in the fall. Gaps around house siding are an attractive place for them to spend the winter. The gaps under the siding are like the crevices in the bark of trees, their natural winter habitat. They will emerge from shelter on warm, late winter days to sun themselves.

When cold returns, the bugs will try to return to shelter and try to enter houses then, too.

"Bug-proofing" a house to keep them out of living spaces is the goal when dealing with any nuisance pest that originates outside. A side benefit of bug-proofing a house is having lower winter heating costs.

Make sure weather stripping around doors and windows is in good condition, and sweeps on the bottom of the doors are tight-fitting. Check for and repair holes or gaps around window screens and any utility entrances. Good screens will also protect from mosquitoes when windows are open to catch summer breezes. Any opening to the outside wider than a quarter is thick enough to allow elm seed bugs to squeeze in. It is probably impossible to seal every crack and hole, but you can certainly reduce the possible entry points.

Don't crush elm seed bugs if they find their way inside, as they stink, and their body fluids can stain paint. A vacuum can be used to sweep them up. If a household insect spray is used on the invaders first, you would still need to vacuum up the bodies. So I recommended saving a step and just vacuuming them and disposing of the captured bugs.



Three views of an adult elm seed bug, a new invasive pest just reported from World. This species is a little shorter from head to tail than a typical boxelder bug at only 1/3 of an inch. The side view shows the beak they use to suck liquid food from plants. Their warning coloration is not as bright as a boxelder bug, although they also defend themselves with a bad odor. Photo: Emilie Bess, USDA APHIS PPQ, Bugwood.org.

A barrier treatment with a properly labeled insecticide around the exterior foundation of a house can reduce the numbers of bugs trying to gain entry. Make sure the product is non-staining and labeled for such usage.

Removal of elm trees to stop the elm seed bugs is not recommended: the benefits of the trees outweigh the nuisance of the insects. However, many old Siberian elm trees in Wyoming are in sad shape from severe storms and banded elm bark beetle damage, so replacing them with other tree species for a long-term solution to the elm seed bug problem is an option.

I hope our native insect predators and parasites of the elm seed bug's native relatives will adapt and attack them and bring down the elm seed bug populations to tolerable levels. An example is the non-native white satin moth, whose populations only explode for a few years after they reach a new region of America before subsiding.

Additional links: How to Pest-Proof Your Home, bit.ly/pestproofhome. University of Idaho Extension's Managing Elm Seed Bugs around Your Home, bit.ly/elmseedbugs.

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Table 3. FRA Resource Net Return Analysis Worksheet for Example Forage Lease.

Resource Net Return Analysis Worksheet		Supplier #1	Supplier #2	Supplier #3	User #1
TOTAL		Landlord			Ryan and Lonna Johnson
LAND Resource Net Return:	-\$35,925	-\$13,400	\$0	\$0	-\$22,525
LIVESTOCK Resource Net Return:	\$8,500	\$16,800	\$0	\$0	-\$8,300
HOUSING Resource Net Return:	-	-	-	-	-
STORED FEED Resource Net Return:	-	\$0	\$0	\$0	\$0
TOTAL Resource Net Return:	-\$27,425	\$3,400	\$0	\$0	-\$30,825
Total Resource Net Return Allocation:	100%	9.9%	-	-	90.1%

Table 4. FRA Net Return Analysis for Example Forage Lease.

Net Return Analysis	Supplier #1	Supplier #2	Supplier #3	User #1
Net Return per YEAR	-\$27,425	\$3,400	\$0	\$0
Net Return per ACRE	-\$195.89	\$24.29	\$0.00	\$0.00
Net Return per ANIMAL	-\$262.44	\$32.54	\$0.00	\$0.00
Net Return per POUND of AVAILABLE TDN	-\$0.11	\$0.01	\$0.00	\$0.00
Net Return per ANIMAL UNIT MONTH	-\$65.30	\$8.10	\$0.00	\$0.00
Net Return per ANIMAL UNIT	-\$783.57	\$97.14	\$0.00	\$0.00

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depreciation (\$28,000) to the lease. The Johnson's net return for the lease would be closer to break-even if that depreciation expense could be shared across other land resources or spread across other months of the year.

The Net Return Analysis table provides estimates of total net return per year, per acre, per animal, per pound of total digestible nutrients (TDN), per animal unit month (AUM), and per animal unit (AU); each category is broken-out across the suppliers and users entered, Table 4.

We will look at the risk analysis features of the FRA tool under the Johnson's lease example in the next installment and discover how that can help evaluate whether this is an equitable lease arrangement for the two parties.

*The Johnson operation is 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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RightRisk

RightRisk.org is an excellent resource for information on managing agricultural risk. In addition to the Forage Risk Analyzer tool, RightRisk.org offers numerous others including the Multi-Temporal Risk Analyzer, Machine Cost Calculator, and Risk Scenario Planner. Each tool offers users a unique way to examine risk and make more-informed decisions. Visit RightRisk.org and select Risk Management. Tools from the Resources tab to begin.

Risk Management Tools

- 1. RightRisk ANALYTICS**
- RightRisk Analytics is a toolbox of over 30 individual risk analysis tools developed by RightRisk.
[CLICK here to download and run on your local computer \(112Mb zip file\)](#)
See your download folder after downloading the file.
- 2. Risk Scenario Planning (RSP)**
- Use this tool to evaluate the risk or uncertainty in your partial budget projections.
- 3. Enterprise Risk Analyzer (ERA)**
- Use this tool to evaluate larger changes or changes in enterprise mix for the operation.
- 4. Forage Risk Analyzer (FRA)**
- Use this tool to estimate the cost of providing forage from various sources - lease, harvested feeds, or owned pasture.
- 5. Machine Risk Calculator (MRC)**
- Use this tool to estimate the cost of individual machinery services, the cost of a field operation (power unit + implement), or to estimate the cost of performing a custom operation.
- 6. Multi-Temporal Risk Analyzer (MTRA)**
- Use this tool to evaluate the risk or uncertainty in your budget projections for changes that take place over a period of time, up to 20 years.
- 7. RD Financial (Whole Farm Budget)**
- Use the RD Financial tool to evaluate more substantial changes, adding ranches/farms, whole enterprises, etc. to the operation.
- 8. Risk Navigator Toolbox**
- Access the extensive risk management library (20+ tools) designed to implement a strategic risk management strategy.

For more information

Developing a fair and equitable agricultural lease (whether for crops, forages, or livestock) can be challenging. Both sides of the agreement should be examined to form an arrangement that works for landlord and tenant.

The Forage Risk Analyzer (FRA) tool from RightRisk.org is one way to compare the costs, benefits, and risk of alternative lease arrangements to determine the full value of a potential or existing forage lease. Visit RightRisk.org > Resources > Risk Management Tools to view the numerous planning tools available to examine risk for various business management decisions.