Evaluating Lease Arrangements

easing or renting pasture or forage is commonplace for many livestock producers across the West and is often an integral part of an operation. While there are many types of arrangements used, establishing a fair and equitable agreement for both parties involved can be a challenge at times.

External information sources can provide pricing information on various types of arrangements. However, these estimates often do not accurately reflect the true value of the forage for individuals on either side of a potential lease. Each side of the agreement brings certain resources and makes contributions; these likely will not be correctly accounted for when using the average price or the "going rate" for leases in the area.



Forage Risk Analyzer tool

The Forage Risk Analyzer (FRA) tool, from RightRisk.org, is a spreadsheet-based tool designed to help a single or multiple parties (up to six) understand the full value

RightRisk Analytics

Tools and guides are available at no cost at the website http://RightRisk.org

help a single or multiple parties (up to six) understand the full value of everything involved in a potential lease and formulate a more fair and equitable agreement.

The tool divides contributions into six resource categories including: land, livestock, housing, stored feed, labor, and machinery. The user can allocate estimated costs and returns for up to six lease participants, after entering the basic information into the tool; the tool

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generates an allocation summary and performs net return and risk analysis based on the information submitted.

FRA contains appendices for nutrient requirements and feedstuff composition for beef cattle and AUM equivalents for various livestock types. It is designed to account for differences in forage quality as well as quantity across forage resources and stored feed stuffs.

Land Resource Section

When considering the value of land to lease, it is important to remember that more than just the value of the forage should be taken into account—the ability to utilize those forage resources should be care-

fully considered as well. FRA allows the user to account for the value of fencing, water, and property taxes in the land section. The tool also gives users the option of selecting one or more different types of land: native pasture, improved pasture, sub-irrigated and irrigated meadow, crop land, and hay land.

Consider the Goshen County XR Ranch* that leases 1,500 acres of native grass for 100 cow-calf pairs for 5 months, 500 Animal Unit Months (AUMs) total, at a rate of \$30/pair/month. We enter this information in the land section of the FRA tool under native range.

The tool allows for varying forage quality, accounted for by entering a percentage of TDN per AUM in this section as well. National Research Council (NRC) tables included in the tool help to estimate the value if it is not known. For this example we will assume an average of 65 percent.

The pasture lease rate is set at \$10/acre (\$3,000/month for 5 months divided by 1,500 acres). Assume the lease includes 10 miles of perimeter and cross fencing installed new at \$9,500 per mile, with a

useful life of 20 years, \$250 in labor expenses per year, and \$1,750 in machinery expenses. For the water resource section, we assume the lease has four stock water points, costing \$2,500 each installed, with labor, machinery, and other expenses of \$3,500 annually. Data entries are shown in the Table 1.

FRA Tool Resource Allocation

FRA allows users to allocate returns and expenses based on the contributions each party makes to the overall arrangement. The XR Ranch provides the \$15,000 lease

Table 1. XR Ranch Land Resources: Native Range and Fence Resources

NATIVE Range	@	Q (f)	· ·		20		
		TOTAL			Average	TOTAL	1
		AUMs	Cost	AUMs	Percent-TDN	Cost	
Description	Acres	Available	per Acre	per Acre	per AUM	per year]
Native pasture lease (100 cow calf pairs)	1,500	500	\$10.00	0.3	65%]
				-		-	
				-		-	
				-		-	
				-		-	
				-		-	
						-	
						-	1
							1
				-		-	1
						-	1
				-		-	1
				-		-	-
				- :			-
	1,500	500				s 15,000	1
	1,300	300				9 10,000	J
FENCE Resources							
FENCE Resources		Cost	Total	Fence	click a button	FENCE	TOTAL
	Miles	per Mile	Years of	Expenses	below to enter	Annual Labor	Expenses
B de fina	of Fence	Installed	Useful Life		other costs	Costs	
Description	of Fence			per Year	otner costs	Costs	per year
Native pasture fence	10	\$9,500	20	\$250			\$ 7,000
					0		-
					_	l	-
						\$ 250	-
							-
					· ·	FENCE	
					•	Machinery and	-
					1	Equipment Costs	-
					1		-
					1	\$ 1,750	-
					1		
					1		
					1		-
	10			\$ 250		\$ 2,000	\$ 7,000

payment and the landlord provides the fence, water, and labor expenses for the lease. On the allocation page of the tool we would separate these expenses (Table 2). The landlord's portion of the annual expenses total \$10,500. Note that the FRA also allows for taxes and other annual expenses to be included in the analysis; we did not list those in this example.

Livestock Section

FRA allows users to account for breeding and market livestock

separately, along with the associated expenses for each. We enter 100 head in the breeding live-stock section with a value per head of \$1,800 and estimated 10 years of service. We also enter labor and machinery expenses for the livestock, incurred by the landlord totaling \$500 per year.

Table 2. XR Ranch Lease Cost and Return Allocation

Resource Expense Allocation Worksheet	l		Supplier #1	Supplier #2	Supplier #3	User #1	User #2	User #3
	Amount to Allocate		Landlord			XR Ranch		
AND Resource:	Panount to Panount		Editatora			70111011		
Native Rangeland	(15,000)	-				(15,000)		
Improved Pasture	- 1	-						
Sub-Irrigated Meadow	-	-						
Irrigated Meadow	-	-						
Hay Land	-	-						
Crop Land	-	-						
Fence Resources:					•			•
Fence Annual Expenses	(250)	-	(250)					
Fence LABOR Expenses	(250)	-	(250)					
Fence MACHINERY and EQUIPMENT Expenses	(1,750)	-	(1,750)					
Fence FIXED Expenses	(4,750)	-	(4,750)					
Water Resources:								
Water Annual Expenses	(1,000)	-	(1,000)					
Water LABOR Expenses	(250)	-	(250)					
Water MACHINERY and EQUIPMENT Expenses	(1,750)	-	(1,750)					
Water FIXED Expenses	(500)	-	(500)					
Property Taxes and Other Land Expenses	-	-						
Total LAND Resource Expenses:	-25,500		-10,500	0	0	-15,000	0	

FRA is designed to account for changes in livestock inventory; for multiple groups of livestock and with differing values by group, if desired.

Next assume that the XR Ranch has the opportunity to lease a standing, damaged corn crop from the

same landlord. This would involve 250 cow-calf pairs with 450 pound calves on 500 acres for 2.5 months. The ranch would wean the calves at one month. In the livestock section, we enter the 250 cows in the breeding livestock section, and use the market livestock section to account for the calves (Table 3).

Stored Feed

FRA's stored feed section allows the user to account for any stored feed or supplements that are fed over the lease period. The XR Ranch will supplement the cattle on the standing corn lease with protein tubs. As with the livestock section, the tool allows for changes in inventory; in this example the ranch starts with 10 tubs at \$95 per unit and purchases 20 during the lease period along with a few additional expenses associated with handling the tubs.

Table 3. XR Ranch Livestock Resources – Breeding and Market Livestock

Breeding Livestock	0	•	0	0		-
-		BEGINNING	ADDED	SOLD	EN	DING
	Value	Number	Number	Number	Number	Years of
Description	per Head	of Head	of Head	of Head	of Head	Useful Life
Cow-calf pairs on native pasture lease	1,800	100			100	1
					-	
					-	
					-	
					-	
					-	
					-	
					-	
		100			100	
Market Livestock	0	2	0	2		
		BEGINNING	ADDED	SOLD	ENDING	
	Value	Number	Number	Number	Number	
Description	per Head	of Head	of Head	of Head	of Head	
Steer calves after weaning (crop land lease)	700	125		124	1	
Heifer calves at weaning (crop land lease)	600	125		124	1	
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					-	
					-	

Summary and Risk Analysis

FRA generates a summary table showing the total net return, after entering all income and expenses associated with the lease arrangement. Allocating the costs associated with the corn lease to the XR Ranch and the expected revenues from the livestock, we see an estimated net

return of \$38,700 to the XR ranch (Table 4). Conversely, the landlord can expect a net return of \$54,500 (\$65,000 for the two leases minus the \$10,500 in expenses).

A unique feature of the FRA is the ability to account for the risk under each of these leases. A risk probability curve can be generated for

Table 4. XR Ranch Net Return Analysis Resource Net Return Analysis Worksheet Supplier #1 Supplier #2

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	TOTAL	Landlord			XR Ranch		
LAND Resource Net Return:	-\$76,902	-\$10,500	\$0	\$0	-\$66,402	\$0	\$0
LIVESTOCK Resource Net Return:	\$106,456	\$0	\$0	\$0	\$106,456	\$0	\$0
HOUSING Resource Net Return:	-	-	-	-	-	-	-
STORED FEED Resource Net Return:	-\$1,354	\$0	\$0	\$0	-\$1,354	\$0	\$0
TOTAL Resource Net Return:	\$28,200	-\$10,500	\$0	\$0	\$38,700	\$0	\$0
Total Resource Net Return Allocation:	100%	21.3%	-	-	78.7%	-	-

Net Return Analysis*		Supplier #1	Supplier #2	Supplier #3	User #1	User #2	User #3
Net Return per YEAR	\$28,200	-\$10,500	\$0	\$0	\$38,700	\$0	\$0
Net Return per ACRE	\$14.10	-\$5.25	\$0.00	\$0.00	\$19.35	\$0.00	\$0.00
Net Return per ANIMAL	\$59.24	-\$22.06	\$0.00	\$0.00	\$81.30	\$0.00	\$0.00
Net Return per POUND of AVAILABLE TDN	\$0.04	-\$0.02	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00
Net Return per ANIMAL UNIT MONTH	\$22.56	-\$8.40	\$0.00	\$0.00	\$30.96	\$0.00	\$0.00
Net Return per ANIMAL UNIT	\$270.72	-\$100.80	\$0.00	\$0.00	\$371.52	\$0.00	\$0.00

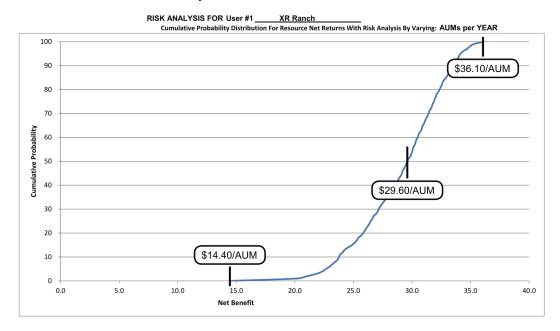
* Net return analysis for suppliers and users allocated based on their relative share of total resource expenses per YEAR.

various risk factors: the user selects the factor and a maximum and minimum expected value.

The main concern for the XR Ranch is variability in AUMs available, depending on changing weather conditions. We enter 2,000 AUMs for a maximum value and 800 for a minimum, with 1,715 as the most likely value generated by the tool.

The resulting probability curve (Table 5) shows the net benefit to the XR Ranch ranging from \$14.40/AUM (\$18,000 total) to \$36.10/AUM (\$45,125 total), with a 50/50 chance of earning \$29.60/AUM (\$37,000 total).

Table 5. XR Ranch Net Risk Analysis



* The XR Ranch 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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