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ABSTRACT

The drought of 2011 forced many cow-calf producers in the U.S. Southern Plains to liquidate cow herds. Rebuilding cow herds poses financial challenges for many, perhaps most, producers. While liquidation strategies varied between individuals, producers who completely liquidated breeding herds will likely face significant cash flow challenges to rebuilding. Here, we develop and analyze three rebuilding strategies, including slow-rebuilding using summer stockers, fast-rebuilding by purchasing bred cows or cow-calf pairs, and cow leasing with heifer retention. Our analyses indicate that rebuilding appears to be financially feasible for producers with healthy pre-drought financial positions.

Financing Herd Rebuilding After the 2011 Drought

By Damona Doye, Roger Sahs, Derrell Peel, and Eric A. DeVuyst

Introduction

The drought of 2011 had long-lasting impacts on cow-calf producers in the U.S. Southern Plains. Between January 2011 and January 2012, beef cow numbers in Texas were down 13.1 percent, down 14.3 percent in Oklahoma, and down 10.9 percent in New Mexico (Livestock Market Information Center, 2012), leading to a 3.1 percent reduction in the U.S. beef cow herd. Rebuilding herds poses many financial challenges to individual producers, particularly generating sufficient cash flow to rebuild. Large numbers of cows marketed during summer 2011 depressed cull cow prices in some periods and places. High expenses associated with extended feeding and haying periods depleted cash reserves for many producers. With reduced cow numbers in 2012, beef supplies are tight, leading to higher prices for replacement heifers as cow-calf producers attempt to bid heifers away from feedlots. These factors combine to make rebuilding financially difficult. To help advise producers on rebuilding, we develop and analyze financial impacts of herd rebuilding strategies for U.S. Southern Plains producers.



Damona Doye, Roger Sahs, Derrell Peel, and Eric A. DeVuyst are Sarkeys Chair and Regents Professor, Assistant Extension Specialist, Breedlove Professor of Agribusiness, and Professor, respectively, in the Department of Agricultural Economics, Oklahoma State University, Stillwater, Oklahoma.

Analyzing rebuilding strategies is complicated by several factors, including the *a priori* financial position of the producer, degree and timing of liquidation induced, management skill of the producer, off-farm income, family living expenses, and uncertainty over future replacement heifer prices, calf sale prices, and production expenses. While our analyses do not accurately model any single producer, they provide a framework for producers to analyze the financial implications of alternative rebuilding strategies and suggest approaches that are more financially feasible than others.

Alternative Scenarios and Rebuilding Strategies

We consider two pasture systems (native and introduced) with three land tenure situations (rent all land, owned land with debt, and owned land without debt) and three potential liquidation strategies: complete herd liquidation; one-half of the breeding herd liquidated in early summer; and retention of all mature cows. For these scenarios, we report the short-term financial outcomes associated with 2011.

Of the three liquidation scenarios, producers who completely liquidated herds will likely have the most financially challenging recovery as they must purchase heifers or cows in a very tight market and will also be unable to retain home-raised replacement heifers for three years. Thus, we focus our modeling efforts on these producers. For the fully liquidated herd, we analyze three rebuilding strategies based on the two types of pastureland and three land tenure positions: rebuild slowly beginning with a mix of heifer and steer stockers,

including stocker heifers with some retained as replacement heifers and a small number of purchased cow/calf pairs; rebuild quickly by purchasing cow/calf pairs; and rebuild slowly with leased cows (Figure 1). We project financial performance and changes in financial position for four years.

Production Assumptions

Our base assumption is a 100-head (85 mature cows and 15 bred heifers) commercial cow-calf herd with 15 replacement heifers and three bulls. The cows are assumed to be moderate-framed and 1,100 pounds on average. Under the complete herd liquidation, breeding stock, including replacement heifers and bulls, and calves, are assumed to have been sold in July 2011. Under the one-half herd liquidation, 15 replacement heifers, 35 cows, and 1 bull are assumed to have been sold in July 2011, leaving 50 cows and 2 bulls on January 1, 2012. Table 1 summarizes the herd inventory for alternative liquidation scenarios.

The pasture systems analyzed include one with native grass and a second with introduced (Bermuda and fescue) grass pastures. Native grasses do not respond well to nitrogen fertilization and the common practice is to not use commercial fertilizer (Huffine & Elder, 1960; Gillen & Berg, 1998). Introduced grass species respond to fertilization and we assume an application of 100 pounds of N per acre (Redfearn et al., 2012). Because production is higher for the introduced species, stocking rates are higher. A total of 320 acres of introduced pasture, 160 acres each of tall fescue and bermudagrass, are needed for the

100 cow herd. In comparison, a total of 1,000 acres of native pastures are needed. Thus, capital requirements differ by pasture type when land has been debt-financed.

Three land tenure scenarios are considered. In one scenario, the producer purchased pasture ten years ago (July 2001) and borrowed 50 percent of the total investment at 6 percent interest with a 20-year note. Introduced pasture with a current market value of \$1,400 is assumed to have cost \$1,000 per acre; thus, the July 1, 2011 loan balance was \$160,000. Similarly, native pasture currently valued at \$1,100 per acre was purchased for \$800 per acre in 2001 and has a July 1, 2011 loan balance of \$400,000. Table 2 summarizes these assumptions. Historical land prices and current market values are based on data from the Department of Agricultural Economics at Oklahoma State University (2012). The second scenario has purchased pasture with no debt. The final land tenure scenario has land rented with rental rate varying by forage type (Table 2). The corresponding price of baled hay of each of the forage types is also given in Table 2.

Rebuilding Strategies

The slow-rebuilding strategy builds initially with purchased stockers as forage is available for a grass stocker enterprise. The profitable stocker enterprise turns investment dollars more quickly than cows. Additionally, stocker heifers can be used as a replacement heifer source. Cash generated by stockers in 2012 is, in part, used to purchase 25 cow/calf pairs in 2013.

The quick-rebuilding strategy has producers buying cow-calf pairs over three years. While achieving

target herd size quickly, this strategy has the highest cash flow demands and higher incurred debt.

Finally, in combination with the total liquidation scenario, we evaluate leasing cows as a rebuilding strategy. While this option may not be available to all producers, it may relieve cash flow stress for producers with opportunities to lease cows.

Model Assumptions

Pasture productivity in 2011 was significantly reduced. As a result, the cost of feeding cows, heifers, and bulls was higher than published budgets. However, some production costs were avoided by culling. We estimate input costs for 2011 in Table 3 using Oklahoma Enterprise Budgets (Sahs & Doye, 2012). Cow and heifer rations were developed using Cowculator (Lalman & Gill, 2012). We also report our assumptions regarding future production cost and cattle prices. Because of tight cattle markets and elevated demand for breeding females, replacement heifer prices are anticipated to be elevated and identical to steer calf prices. For years 2012 through 2014, \$175/cwt prices are used for both weaned heifers and bulls. For 2015, \$170/cwt is assumed. Pasture rental rates are taken from Doye and Sahs (2012).

Pastures are likely to suffer lingering effects from the drought. To account for this reduced pasture, pasture productivity is assumed to be 50 percent of normal in 2012, 75 percent in 2013, and 100 percent in 2014 and 2015.

The initial financial position of the farm business is critical in determining its ability to recover from the drought and rebuild. The two pasture scenarios and three land tenure positions yield different balance

sheets representing farm financial health as of January 1, 2011. We assume that raised cows, bred heifers, and replacement heifers have a January 1, 2011 market value of \$900 per head while bulls are valued at \$2,500 per head. Hay inventory is assumed to have been raised. The initial balance sheets for the debt financed producers with introduced and native pastures are presented in Table 4. Note that the balance sheets for pasture-renting operators and debt-free operators can easily be inferred from these balance sheets.

In two of the three rebuilding strategies, producers are assumed to purchase cow-calf pairs or bred cows at a price of \$2,000. Bulls are purchased in all three rebuilding strategies for \$3,000 each. For all breeding livestock purchases, we assume financing for five years, six percent interest rate, and zero percent down payment for all scenarios.

Results

Initially, we project end-of-year financial position for different liquidation strategies, land tenure situations and pasture types, highlighting the variability in outcomes for 18 scenarios (3 liquidation strategies \times 3 land tenure positions \times 2 pasture types). These impacts are analyzed using the Integrated Farm Financial Software (IFFS) (Doye, Petermann, & Haefner, 2002) and summarized in Tables 5 (introduced pasture) and 6 (native pasture). The timing and extent of cull sales affects revenues, expenses, net cash flow, cash reserves, assets, and owner equity. Introduced pasture had higher costs because of fertilizer expense and higher rent charges. The debt repayment burden was much higher for native pasture given the larger

number of acres per head required. While rented land costs exceed those of land owned free and clear, rental expenses were less than principal and interest payments on land with debt. Although flush with cash if proceeds of cow sales were retained, producers who liquidated the entire breeding herd faced the biggest cash flow challenge in rebuilding given the high cost of replacement females.

Regardless of land tenure and debt position and pasture type, producers who opted to retain mature cows through the drought realized the worst net operating cash flow in 2011. These producers had elevated production expenses, purchasing more hay and protein supplement than typical at higher than average prices. However, these producers do not face the same rebuilding challenges as producers who liquidated part or all of their herds. Given the possibility of cash flow difficulties associated with rebuilding, we focus on operations with total liquidation as a starting position. The end-of-year financial situations for these operations are reported in columns 2, 5, and 8 of Tables 5 (introduced pasture) and 6 (native pasture). Using these as our starting position for January 1, 2012, we analyze the financial impacts of three rebuilding strategies, focusing on cash flow.

Table 7 lists annual herd inventories and purchases for the slow-rebuilding strategy using stockers following total liquidation on introduced pastures. Stockers provide both income and a source of replacement heifers. Forage that would normally be grazed by cows is instead grazed by stockers. Rebuilding from zero head as of January 1, 2012, stockers are purchased in the spring of 2012 and

sold in the fall except for 20 heifers retained to begin rebuilding. In 2013, cow/calf pairs and more stockers are purchased, including 25 heifers. This continues until 2015 when no additional purchases are made. Bulls are purchased in 2013 and 2014. By 2016, the rebuilding is complete.

Each of the animals purchased and in inventory has a corresponding budget developed for the number of days in the herd in each year. These budgets are combined to generate financial projections for the herd.

Table 8 highlights projected financial measures for rebuilding slowly on introduced pasture for alternative land tenure and debt positions. While cash flow is problematic for most of the scenarios in most years, the reserve of cash generated from the herd liquidation is sufficient to cover annual cash flow deficits in all years of each of the scenarios. Cow and bull purchases in 2013 and 2014 are financed with new debt. If a producer did not preserve cash from the 2011 liquidation, additional debt would be acquired in most of the years and scenarios.

In Table 9, projections for each of the native pasture land tenure and debt position with rebuilding slowly are reported. Cash flow becomes problematic for the owned pasture with debt case, but again cash reserves generated from herd liquidation in 2012 cover operating cash deficiencies. The debt-free owned native pasture and rented native pasture scenarios have projected positive net operating cash flow in all years. These two scenarios have the lowest cash demands of the native pasture scenarios because of no principal and interest

payments on land for all years. In all scenarios, debt service demands peak in 2015 due to financing of cow-calf pair purchases in 2013 and 2014.

Table 10 reports the inventory and purchase assumptions for the rebuilding quickly strategy. In 2012, 50 cow-calf pairs are purchased with an additional 30 pairs in 2013 and 20 pairs in 2014. Bulls are purchased in 2012 and 2014. Whole-herd financial projections for rebuilding quickly on native pasture are reported in Tables 11 (introduced pasture) and 12 (native pasture). Because of the added debt associated with cow-calf purchases, these scenarios all have higher cash flow demands than the corresponding rebuilding slowly scenarios. As with the rebuilding slowly scenarios, the debt-free owned land and rented land scenarios have the best projected cash flow. Given a 2011 liquidation-generated cash reserve, the producer with debt-free owned pasture (either introduced or native) has sufficient cash flow to avoid debt accumulation from rebuilding quickly. Similarly, producers leasing pastures can avoid debt accumulation. However, producers owning pasture with debt, either introduced or native grasses, have operating debt accumulating by the end of the 2015. Rebuilding quickly may be feasible for producers with outstanding debt on land if their pre-2011 financial position was healthy.

Table 13 reports inventory assumptions for cow leasing with bull purchases in 2012 and 2014. Rebuilding will take several years with this strategy. Tables 14 (introduced pasture) and 15 (native pasture) summarize cash flows and other financial information. While this strategy has the

lowest cash flow demands, it also generates the lowest net cash flow of all the strategies. Operating debt accumulates for all of the introduced pasture scenarios and the owned land with debt native pasture scenario. This strategy appears to work best with two native pasture scenarios, both owned debt-free and leased. In the remaining leasing scenarios, operating debt accumulates in 2014 or 2015. It is important to note that no debt for purchasing cows has accumulated in these leasing scenarios, but the owned cow herd increases over time. (In both the rebuilding slowly and rebuilding quickly scenarios, additional term debt is incurred for breeding livestock purchases.) As the producer retains heifers from his/her share of the calf crop, the owned cow herd increases steadily after 2013.

Summary

Rebuilding cow herds after the 2011 drought will be costly and take years for most producers. Producers who liquidated entire breeding herds face the biggest cash flow challenges in rebuilding and these producers are the focus of our analyses. To aid in rebuilding decisions, we analyze three rebuilding strategies. The first strategy, rebuilding slowly, utilizes summer stockers both as a source of income and replacement heifers plus a small number of purchased cow/calf pairs. The advantages of this strategy are that debt financing of replacement females is moderated and stockers provide annual cash flow. The second strategy, rebuilding quickly, relies on purchases of cow-calf pairs or bred cows and heifers. While rebuilding to the target herd size in a few years, this strategy has the producer incurring the largest amount of debt. The final strategy, cow leasing, has producers incurring the

least amount of debt, but takes several years to reach 100 cows and has poor annual cash flow.

Each of these strategies is analyzed with three land tenure positions: owned land with debt, owned land without debt, and leased land. Two pasture types, introduced grass and native grass, are considered in combination with the land tenure positions and herd rebuilding strategies. In each scenario analyzed, annual herd sizes are limited by the productivity of the pasture types.

With the slow rebuilding scenarios, all producers are projected to cash flow their cow herd rebuilding. The targeted herd size is reached by the end of fourth year of rebuilding by initially utilizing stockers as a source of cash flow and replacement heifers. Cow-calf pairs are purchased in the second year. In several of the scenarios, producers will draw on operating notes but are able to repay them before year's end.

The fast rebuilding scenarios have producers buying cow-calf pairs to reach the target herd size by the end of the third year of rebuilding. Cash flow demands are high. Those producers with mortgage debt on pastures accumulate some operating debt by the end of the fourth year. This debt is far less than assets (cows and bulls) accumulated over the four-year period, even with economic depreciation considered.

The leasing scenarios take six years to reach the target herd size. Cash flows are much lower than with other scenarios and operating debt accumulates with four of the six scenarios at least

through the first four years of rebuilding. However, no term debt is incurred to purchase cows and bulls.

Results from our multi-year cash flow projections for rebuilding are encouraging. Regardless of land tenure, pasture type, or rebuilding strategy, rebuilding appears to be financially feasible. In some scenarios, operating debt accumulates, but in most cases is less than \$40,000. The leasing options with indebted-land accumulate the most operating debt (about \$54,000 for native pastures and \$76,000 for improved pastures).

Our analyses are limited to producers who were in reasonable financial health prior to the 2011 drought. It is reasonable to expect that producers who were financially struggling prior to 2011 will likely be in worse condition following the drought. Regardless of prior financial condition, producers need information similar to that provided here that is specific to their operation. The role of professional farm managers and extension personnel is to provide guidance in rebuilding. Our analyses provide a framework for advisors and producers to follow.

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Table 1. Liquidation Scenarios

	100% Liquidation	50% Liquidation	Retain Mature Cows
January 1, 2011	85 cows	85 cows	85 cows
Inventory	15 bred heifers	15 bred heifers	15 bred heifers
	15 replacement heifers	15 replacement heifers	15 replacement heifers
	3 bulls	3 bulls	3 bulls
July 1, 2011	85 cows	35 cows	0 cows
Sales	15 bred heifers	15 bred heifers	15 bred heifers
	15 replacement heifers	15 replacement heifers	15 replacement heifers
	3 bulls	1 bull	0 bull
January 1, 2012	0 cows	50 cows	85 cows
Inventory	0 bred heifers	0 bred heifers	0 bred heifers
	0 replacement heifers	0 replacement heifers	0 replacement heifers
	0 bulls	2 bulls	3 bulls

Table 2. Forage and Hay Assumptions by Pasture Type

	Introduced Pasture	Native Pasture
Forage	160 acres of tall fescue + 160 acres of bermudagrass	1,000 acres
Stocking rate	3.2 acres/head	10 acres/head
Rent	\$22/acre for tall fescue, \$17/acre for bermudagrass	\$12/acre
Fertilizer	\$70/acre	Not applicable
Hay	\$75/ton	\$65/ton
Land purchase price	\$1,000/acre	\$800/acre
Land market value	\$1,400/acre	\$1,100/acre
Initial debt for 50% financing (20-year note, 6%, purchased July 2001)	\$160,000	\$400,000

Table 3. Production Parameters for 2011 and Future Years

	Future Years		2011	
Production and price assumptions				
Cow weight	1,100#		1,100#	
Cull cow price	\$65/cwt		\$65/cwt	
Bull weight	1,750#		1,750#	
Cull bull price			\$80/cwt	
Weaned heifer weight	475#		340#	
Weaned heifer price	\$175/cwt (2012-2014) \$170/cwt (2015)		\$140/cwt	
Weaned steer weight	525#		380#	
Weaned steer price	\$175/cwt (2012-2014) \$170/cwt (2015)		\$155/cwt	
Replacement heifer weight	900#		825#	
Replacement heifer price			\$117/cwt	
Prairie hay price	\$58/ton		\$100/ton	
Bermudagrass hay price	\$72/ton		\$130/ton	
Expected forage availability as percent of normal	50% (2012) 75% (2013) 100% (2014-2015)			
	Native Pasture	Introduced Pasture	Native Pasture	Introduced Pasture
Protein supplement (lb/hd/day)	38% cubes	20% cubes	38% cubes	20% cubes
Cows kept full year	1.5#, 150 d	2#, 75 d	1.5#, 240 d	2#, 125 d
Breeding females culled mid-July			1.5#, 100 d	2#, 75 d
Weaned heifers (Oct-Dec)	1.5#, 45 d	2#, 23 d		
Bred heifers	1.5#, 150 d	2#, 75 d		
Prairie hay (lb/hd/day)				
Cows kept full-year	24#, 30 d		24#, 150 d	
Breeding females culled mid-July ¹			24#, 60 d	
Weaned heifers (Oct-Dec)	13#, 10 d			
Bred heifers	19#, 30 d			
Bermudagrass hay (lb/hd/day)				
Cows kept full year		24#, 75 d		24#, 150 d
Breeding females culled mid-July				24#, 45 d
Weaned heifers (Oct-Dec)		13#, 23 d		
Bred heifers		19#, 75 d		
Minerals	0.12 lb/hd/day		0.12 lb/hd/day	
Labor	5.65 hours/head		5.65 hours/head	

¹We assume that all replacement heifers were culled in July. Cells left blank indicate Not Applicable.

Table 4. Farm Balance Sheet for 100 Cow Herd, Introduced and Owned Native Pasture with Debt Financing, January 1, 2011, Market Value (\$)

	Introduced Pasture	Native Pasture
Assets		
Cash & checking	3,000	3,000
Supplies	6,000	6,000
85 cows	76,500	76,500
15 bred heifers	13,500	13,500
15 replacement heifers	13,500	13,500
3 bulls	7,500	7,500
Vehicle & trailer	42,000	42,000
Equipment	6,000	6,000
Tractor	30,000	30,000
No baler or swather		
Land:	448,000	1,100,000
320 a at \$1,400/a for eastern OK		
1000 a. at \$1,110/a for western OK		
Barn	35,000	35,000
Total assets	646,035	1,342,000
Liabilities		
Land note (remaining balance)	96,252	256,675
Owner equity	549,783	1,085,325
Debt to asset ratio	15%	19%

Table 5. Financial Outcomes for Alternative July 2011 Herd Liquidation Strategies, Introduced Pasture

	Rented land			Owned land with debt			Owned land no debt		
	100% Liquidated	50% Liquidated	Retain mature cows	100% Liquidated	50% Liquidated	Retain mature cows	100% Liquidated	50% Liquidated	Retain mature cows
Cash inflow (\$)									
Calf sales	44,938	44,938	44,938	44,938	44,938	44,938	44,938	44,938	44,938
Government payments ¹	6,176	6,176	6,176	6,176	6,176	6,176	6,176	6,176	6,176
Capital sales	79,454	40,904	14,479	79,454	40,904	14,479	79,454	40,904	14,479
Cash inflow	130,568	92,018	65,593	130,568	92,018	65,593	130,568	92,018	65,593
Cash outflows(\$)									
Cash expenses	47,825	61,389	67,820	41,105	54,669	61,100	41,105	54,669	61,100
Debt service				13,950	13,950	13,950			
Operating interest	702	1,018	1,219	500	816	1,018	500	816	1,018
Net cash flow from operations	82,040	29,611	(3,446)	75,012	22,582	(10,474)	88,962	36,532	3,476
Line of credit balance:									
Average ²	10,799	15,654	19,403	7,697	12,553	18,473	7,697	12,553	15,655
Maximum	29,531	40,615	47,336	22,811	33,895	40,616	22,811	33,895	40,616
Ending			3,446			10,543			
Debt to asset ratio (year-end)			1.9	14.9	15.0	18.7			
Interest expense as % of gross receipts	1.4	2.0	2.4	13.0	13.6	14.0	1.0	1.6	2.0

¹ Government payments are made under the Livestock Indemnity Program.

² The line of credit should be interpreted as new borrowing. In IFFS software, the line of credit is used to make up any cash shortfalls month to month.

Table 6. Financial Outcomes for Alternative July 2011 Herd Liquidation Strategies, Native Pasture

	Rented land			Owned land with debt			Owned land no debt		
	100% Liquidated	50% Liquidated	Retain mature cows	100% Liquidated	50% Liquidated	Retain mature cows	100% Liquidated	50% Liquidated	Retain mature cows
Cash inflow (\$)									
Calf sales	44,938	44,938	44,938	44,938	44,938	44,938	44,938	44,938	44,938
Government payments ¹	6,176	6,176	6,176	6,176	6,176	6,176	6,176	6,176	6,176
Capital sales	79,454	40,904	14,479	79,454	40,904	14,479	79,454	40,904	14,479
Cash inflow	130,568	92,018	65,593	130,568	92,018	65,593	130,568	92,018	65,593
Cash Outflow(\$)									
Cash expenses	30,224	42,181	47,467	18,224	30,181	35,467	18,224	30,181	35,467
Debt service				34,873	34,873	34,873			
Operating interest	752	1,019	1,187	392	659	827	392	659	827
Net cash flow from operations	99,592	48,817	16,939	77,079	26,304	(5,574)	111,952	61,836	29,299
Line of credit balance:									
Average ²	11,567	15,684	18,258	6,029	10,145	14,276	6,029	10,145	12,719
Maximum	26,625	36,102	41,679	14,625	24,102	29,679	14,625	24,102	29,679
Ending						5,574			
Debt to asset ratio (%):				18.6	18.6	19.0			
Ending									
Interest expense as % of gross receipts	1.5	2.0	2.3	30.9	31.4	31.7	0.8	1.3	1.6

¹Government payments are made under the Livestock Indemnity Program.² The line of credit should be interpreted as new borrowing. In IFFS software, the line of credit is used to make up any cash shortfalls month to month.

Table 7. Cattle Inventory, Jan. 1, with Rebuilding Slowly from Total Liquidation and Including Stockers, Introduced Pasture

	2011	2012	2013	2014	2015	2016
Beginning inventory						
Cows	85	0	0	25	45	95
Bulls	3	0	0	1	3	3
Bred heifers	15	0	0	20	25	5
Replacement heifers	15	0	20	25	5	15
Purchases						
Stocker steers		172	215	146		
Stocker heifers		100	25			
Cow/calf pairs			25	25		
Bulls			1	2		

Table 8. Financial Projections for Rebuilding Slowly from Total Liquidation, Introduced Pasture

	2012	2013	2014	2015
Owned pasture with debt				
Net cash flow from beef operations	(14,297)	(15,118)	(7,854)	(22,734)
Capital asset purchases		53,000	36,000	
Line of credit balance				
Average			977	8,726
Maximum			12,696	38,804
Ending				
Owned pasture, no debt				
Net cash flow from beef operations	(347)	(1,168)	6,160	(8,216)
Capital asset purchases		53,000	36,000	
Line of credit balance				
Average				
Maximum				
Ending				
Leased pasture				
Net cash flow from beef operations	(7,067)	(7,888)	(560)	(14,950)
Capital asset purchases		53,000	36,000	
Line of credit balance				
Average				215
Maximum				2,792
Ending				

Table 9. Financial Projections for Rebuilding Slowly from Total Liquidation, Native Pasture

	2012	2013	2014	2015
Owned pasture with debt				
Net cash flow from beef operations	(10,741)	(11,492)	(3,034)	(16,709)
Capital asset purchases		53,000	36,000	
Line of credit balance				
Average			460	4,179
Maximum			5,974	18,955
Ending				
Owned pasture, no debt				
Net cash flow from beef operations	24,132	23,381	31,869	18,435
Capital asset purchases		53,000	36,000	
Line of credit balance				
Average				
Maximum				
Ending				
Leased pasture				
Net cash flow from beef operations	12,132	11,381	19,869	6,435
Capital asset purchases		53,000	36,000	
Line of credit balance				
Average				
Maximum				
Ending				

Table 10. Cattle Inventory, Jan. 1 with Rebuilding Quickly from Total Liquidation Using Cows Only, Introduced Pasture

	2011	2012	2013	2014	2015
Inventory					
Cows	85		50	80	100
Bulls	3		2	2	3
Bred heifers	15				
Replacement heifers	15				
Purchases					
Cow/calf pairs		50	30	20	
Bulls		2		1	

Table 11. Financial Projections for Rebuilding Quickly from Total Liquidation, Introduced Pasture

	2012	2013	2014	2015
Owned pasture with debt				
Net cash flow from beef operations	(5,844)	(17,287)	(42,909)	(40,179)
Capital asset purchases	106,000	60,000	43,000	
Line of credit balance				
Average		595	10,447	43,639
Maximum		7,735	42,599	96,654
Ending				31,748
Owned pasture, no debt				
Net cash flow from beef operations	8,106	(3,839)	(28,280)	(24,250)
Capital asset purchases	106,000	60,000	43,000	
Line of credit balance				
Average				6,095
Maximum				26,187
Ending				
Leased pasture				
Net cash flow from beef operations	1,386	(10,559)	(35,122)	(31,988)
Capital asset purchases	106,000	60,000	43,000	
Line of credit balance				
Average			1,865	21,752
Maximum			13,841	60,109
Ending				

Table 12. Financial Projections for Rebuilding Quickly from Total Liquidation, Native Pasture

	2012	2013	2014	2015
Owned pasture with debt				
Net cash flow from beef operations	(1,625)	(12,703)	(36,949)	(25,802)
Capital asset purchases	106,000	60,000	43,000	
Line of credit balance				
Average			5,687	26,385
Maximum			25,486	73,382
Ending				7,766
Owned pasture, no debt				
Net cash flow from beef operations	33,248	22,170	(1,706)	2,919
Capital asset purchases	106,000	60,000	43,000	
Line of credit balance				
Average				
Maximum				
Ending				
Leased pasture				
Net cash flow from beef operations	21,248	10,170	(13,706)	(9,081)
Capital asset purchases	106,000	60,000	43,000	
Line of credit balance				
Average				
Maximum				
Ending				

Table 13. Cattle Inventory, Jan. 1 with Rebuilding Using Leased Cows from Total Liquidation

	2011	2012	2013	2014	2015	2016	2017
Inventory							
Cows	85				13	34	56
Bulls		2	2	3	3		
Bred heifers	15			13	21	22	22
Replacement heifers	15		14	23	25	24	
Leases							
Bred cows or cow/calf pairs		50	80	87	66	44	22

Table 14. Financial Projections for Rebuilding from Total Liquidation Using Leased Cows, Introduced Pasture

	2012	2013	2014	2015
Owned pasture with debt				
Net cash flow from beef operations	(43,523)	(31,729)	(39,021)	(65,015)
Capital asset purchases	6,000		3,000	
Line of credit balance				
Average		2,913	26,305	52,922
Maximum		18,185	57,294	91,870
Ending			38,885	75,918
Owned pasture, no debt				
Net cash flow from beef operations	(29,573)	(17,590)	(23,367)	(19,915)
Capital asset purchases	6,000		3,000	
Line of credit balance				
Average			100	4,037
Maximum			1,304	20,129
Ending				1,483
Leased pasture				
Net cash flow from beef operations	(36,293)	(24,310)	(30,636)	(27,361)
Capital asset purchases	6,000		3,000	
Line of credit balance				
Average			8,544	34,298
Maximum			28,386	54,502
Ending			9,120	37,287

Table 15. Financial Projections for Rebuilding from Total Liquidation Using Leased Cows, Native Pasture

	2012	2013	2014	2015
Owned pasture with debt				
Net cash flow from beef operations	(38,927)	(29,478)	(32,668)	(30,200)
Capital asset purchases	6,000		3,000	
Line of credit balance				
Average		1,992	14,379	43,580
Maximum		9,278	42,750	71,009
Ending			23,770	54,195
Owned pasture, no debt				
Net cash flow from beef operations	(4,054)	5,525	3,139	6,764
Capital asset purchases	6,000		3,000	
Line of credit balance				
Average				
Maximum				
Ending				
Leased pasture				
Net cash flow from beef operations	(16,054)	(6,475)	(8,861)	(5,236)
Capital asset purchases	6,000		3,000	
Line of credit balance				
Average				
Maximum				
Ending				

Figure 1. Scenarios and Strategies Analyzed

