



FARM Assistance

Focus



Impact of Prolonged Drought on South Texas Ranches

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There are many strategies that a ranch business can implement.

Many parts of South Texas have been in the throes of a drought since November 2005. Cattlemen have responded by implementing different management strategies to reduce the effects of lost forage including heavier-than-normal culling of cow herds, supplemental feeding and/or selling calves at lighter weights. As any drought lengthens and forage becomes increasingly scarce, feeding becomes more expensive in efforts to sustain herds. Increased feed costs during a drought, culling, and herd replacement costs after a drought may have a significant impact on ranch profitability, cash flow, debt service and, possibly, survivability.

Assumptions

The Financial And Risk Management (FARM) Assistance financial planning model was used to evaluate and illustrate the individual financial impacts of a prolonged drought. Two scenarios, normal rainfall and extended drought, were assumed. This study estimates the impact of a two-year drought on a representative (hypothetical) commercial cow-calf ranching business in South Texas. The 2,000-acre representative ranch is assumed to be in DeWitt County with the basic assumptions and characteristics given in Table 1. Production costs and estimates for overhead charges were based

on typical rates for the region under normal and drought scenarios. Cattle prices were obtained from the Amarillo Livestock Market Report for Aug 14, 2006.

The representative ranch was analyzed over a 10-year period. In the drought scenario, herd culling occurs in 2006-2007 and herd rebuilding would occur in 2008-2009. The base year for the 10-year analysis is 2006 and projections are carried through 2015. The assets, debts, machinery complement, and scheduled equipment replacements for the projection period were the same in both the normal and drought scenarios. Long-term livestock price trends follow projections provided by the Food and Agricultural Policy Research Institute (FAPRI, University of Missouri) with costs adjusted for inflation over the planning horizon.

The projected financial position and performance was evaluated across five major categories including liquidity, solvency, profitability, repayment capacity, and financial efficiency. Representative measures were chosen for each of these five categories and are presented in tabular and/or graphical format for each scenario. Each measure chosen provides information with respect to the projected variability in the ranches financial position and performance. When

taken as a whole, these measures provide insight into the risk bearing ability of the ranch throughout the planning horizon.

Results

A comprehensive projection including price and weaning weight risk for the normal and drought scenarios are illustrated in Table 2 and Figures 1 and 2. Table 2 presents the average outcomes for selected financial projections, while the graphical presentations illustrate the range of possibilities for the selected variables. Cash receipts average \$99,170 over the 10-year period for the normal rainfall scenario, 8.6% more than the drought scenario. The lower cash receipts in the drought scenario reflected herd culling in 2006-2007 and then rebuilding in 2008-2009. Average cash costs were \$83,460 for the normal conditions, 20.5% less than with the drought scenario reflecting the higher feeding costs incurred.

In the two-year drought scenario, the profitability of the ranch is severely impacted over the ten year planning horizon. Net cash farm income (NCFI) for 2006 is projected to be -\$57,930, compared to \$31,980 in normal conditions (Table 2 and Figure 1). For 2006-2015, it is expected to average -\$13,680 under the drought conditions

Table 1: Representative South Texas Ranch Assumptions

Selected Parameter	Normal Year	2 Year Drought
Operator Off-Farm Income	\$24,000/year	Same
Spouse Off-Farm Income	\$35,000/year	Same
Family Living Expense	\$30,000/year	Same
Ownership Tenure	100%	Same
Debt Situation	Low	Same
Herd Size	200 cows, 8 bulls	Same
Calf Weaning Rate	85%	65% in 2006-2007; 75% in 2008
Herd Replacement	Bred Cows	Same
Supplemental Feeding	Salt/Mineral blocks	Same
Hay Fed/Cow/Year	1.0 tons	4.0 tons in 2006-2007; 2.5 tons in 2008
Protein Cubes Fed/Cow/Year	200 lbs.	400 lbs. in 2006-2007; 300 lbs. in 2008
Cow Culling Rate/Year	7.50%	15% in 2006-2007
Steer Weaning Weights	525 lbs.	475 lbs. in 2006-2007
Heifer Weaning Weights	475 lbs.	425 lbs. in 2006-2007
Steer Prices	\$1.14/lb.	\$1.19/lbs. in 2006-2007
Heifer Prices	\$1.09/lb.	\$1.14/ lb. in 2006-2007
Cull Cow Prices	\$.45/lb	Same
Cull Bull Prices	\$.50/lb.	Same
Bred Cow Prices	\$1,100/head	Same
Replacement Bull Prices	\$2,000/head	Same
Hay Prices	\$70/ton	\$140/ton in 2006; \$120/ton in 2007
Range Cube Prices	\$.12/lb.	Same

The overall financial position and performance of the ranch operation is significantly impacted by prolonged drought.

Table 2: DeWitt Ranch Projections--Selected Indicators

Scenario	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Avg.
Total Cash Receipts (\$1,000)											
Normal Year	116.42	109.73	105.28	100.75	96.11	92.22	90.49	91.22	93.10	96.35	99.17
2 Year Drought	97.45	82.21	70.26	90.68	100.30	96.12	93.19	92.64	93.66	96.54	91.30
Total Cash Costs (\$1,000)											
Normal Year	84.45	82.57	81.62	81.26	81.14	82.85	83.28	84.29	85.76	87.37	83.46
2 Year Drought	155.38	144.48	119.60	106.36	88.67	86.94	85.84	86.19	87.43	88.99	104.99
Net Cash Farm Income (\$1,000)											
Normal Year	31.98	27.15	23.66	19.49	14.97	9.37	7.21	6.93	7.34	8.98	15.71
2 Year Drought	-57.93	-62.27	-49.34	-15.69	11.63	9.17	7.35	6.44	6.24	7.55	-13.68
Ending Cash Reserves (\$1,000)											
Normal Year	49.98	85.17	119.39	156.61	198.30	227.49	256.14	285.08	314.86	346.41	
2 Year Drought	-22.58	-55.80	-76.50	-64.65	-23.51	3.68	30.77	57.45	83.58	110.72	
Real Net Worth (\$1,000)											
Normal Year	1,865.69	1,870.94	1,867.79	1,873.18	1,886.58	1,892.80	1,912.16	1,940.52	1,965.05	1,988.80	
2 Year Drought	1,756.14	1,681.51	1,651.18	1,653.34	1,671.98	1,682.30	1,705.70	1,736.81	1,763.01	1,787.95	
Debt-to-Asset Ratio (%)											
Normal Year	10.87	10.46	10.07	9.93	10.87	10.64	10.45	10.29	10.11	9.93	10.36
2 Year Drought	12.31	13.74	14.35	13.64	12.98	12.03	11.54	11.25	11.01	10.79	12.36

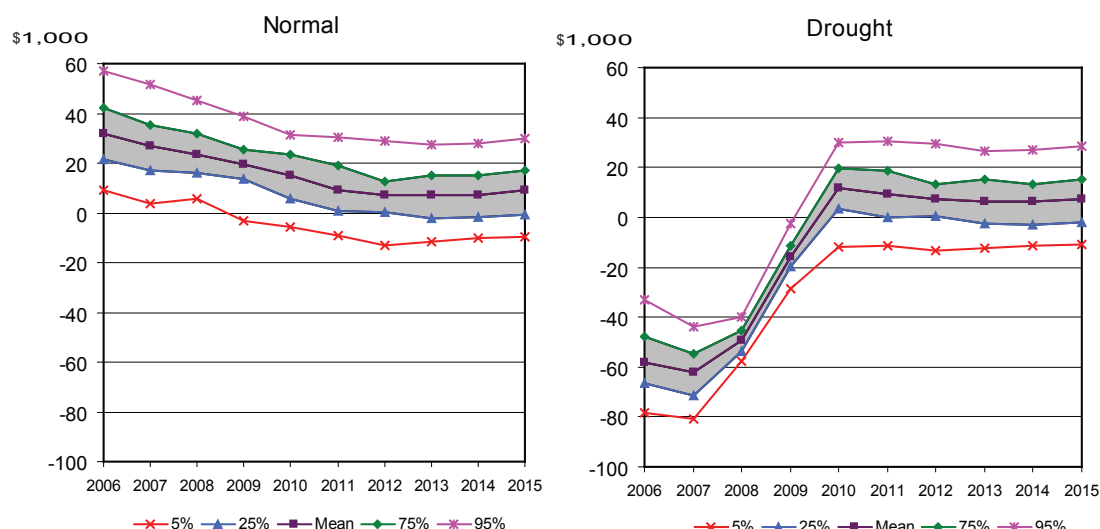
and \$15,710 in normal conditions. The negative NCFI under drought conditions is primarily due to the increased feeding costs and reduction in herd size and number of calves sold. While the drought is assumed to extend through 2007, the financial impacts extend through 2009 before the operation returns to positive NCFI comparable to the normal rainfall scenario. Over the 10-year period, cash receipts will also generally decline along with projected

cattle prices. Figure 1 also illustrates the risk in NCFI, with the range indicating profit levels from approximately -\$13,000 to \$57,000 in normal conditions and -\$81,000 and \$30,000 under drought conditions are possible. These ranges suggest that there is significant risk of operating losses over the projected period. The shaded area of the graph suggests that the operation is expected to have a 50% chance of realizing a -\$2,000 to \$43,000 profit level in normal conditions

and -\$71,000 to 19,000 in drought conditions.

The liquidity of the operation is measured by the ending cash balance (Table 2 and Figure 2). In normal conditions, this measure is projected to generally increase from \$49,980 to \$346,410 during the planning horizon. This compares to projected cash flow problems in the drought scenario during the first five years. Figure 2 illustrates

Figure 1. Projected Variability in Net Cash Farm Income for the Normal and Drought Scenarios.



Note: Percentages indicate the probability that Net Farm Income is below the indicated level. The shaded area contains 50% of the projected outcomes.

The best time to plan for a drought is when it is raining.

average ending cash balances and risk of cash shortfalls. Between 2006 and 2015, there is little risk of negative reserves in normal conditions, but, in the drought scenario, negative reserves are highly probable through 2011. The probability of carryover debt is 1% or less during the 2006-2015 projection assuming normal conditions. In the 2-year drought conditions, the probability of carryover debt increases to 99% or more in 2007-2009 before declining in subsequent years. The cash flow problem indicates significant impact on the ranch's debt servicing ability.

Growth in cash reserves and real estate assets translates into a projected increase in real net worth in the normal scenario. The operation begins in 2006 with a real net worth of \$1.87 million which increases to \$1.99 million by 2015 (Table 2). However, in the drought scenario, real net worth falls to \$1.79 million by 2015, about 10% less than the normal scenario.

The debt-to-asset ratio (Table 2) is a measure of the ranch's solvency. Under normal conditions, the debt level relative to the total asset value of the ranch begins at 10.87% in 2006. The debt is projected to be paid down to 9.93% by 2015. Reduced overall cash receipts, increased feeding costs and projected carryover debt increases the ranch's debt ratio over the planning period in the drought scenario.

Implications

The projected results are, hopefully, a worse case scenario and may not fit any specific ranch in South Texas. However, they do give some indication of what could happen under the conditions of continued drought. There are many strategies that a ranch business can implement and each individual rancher should evaluate his options in light of his own individual situation. The FARM Assistance program is designed to help individuals evaluate their business strategies and options. The following points should

be considered a part of any management or business strategy:

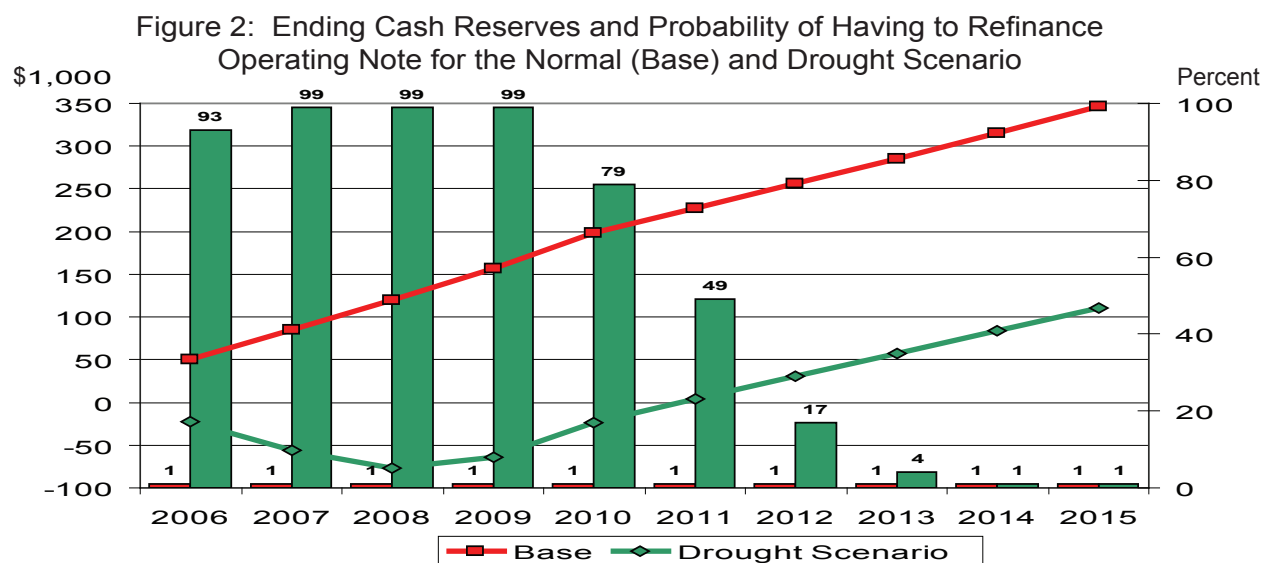
Break-even cost of feeding based on existing cattle prices and feed cost in the current year.

- The future cost of herd replacement and future loss in capacity when making decisions to cull and how much to cull.

- Stocking rates need to be managed in all weather and rainfall conditions to ensure existing and future forage availability.

- Overstocking and overgrazing increase the time required for forage conditions to recover and the required level of supplemental feeding.

South Texas has definitely not seen its last drought, and the best time to plan for a drought is when it is raining. A prudent manager will plan ahead before a drought occurs and, in the midst of a drought, implement management strategies that will minimize the impact to the profitability and long-term survivability of the ranch operation.



*Bar graph represents Probability of Having to Refinance Operating Note and utilizes the scale to the left.

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