FARM Assistance Focus

Texas A&M AgriLife Extension

Profitability of Beef Cattle Best Management Practices: Restocking Strategies - Updated Market Conditions

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The cattle market has improved dramatically since the summer of 2013. Record high fed, feeder and replacement cattle prices are the result of strong beef demand and a drought that reduced the U.S. cattle herd. The prolonged 2011-2013 drought, especially in Texas, caused a substantial liquidation in replacement cows and heifers and overall cattle numbers as grazing conditions deteriorated. Rain over most of east, central, and south Texas in the spring of 2014 has significantly improved forage conditions and increased the demand and prices for replacements. Producer optimism has rebounded and spurred herd rebuilding plans.

Current cattle prices, including replacements, are averaging 20 percent or more compared to July of 2013. This is directly impacting the capital investment required to rebuild herds and the financial risk to producers. This lends to a greater need by producers to evaluate their "best management practices" or available strategies to rebuild their cow herd, sustain herd performance, and ensure ranching profitability. The purpose of this paper is to update the Focus 2013-2 study completed in July 2013 "Economic Impact of Beef Cattle Best Management Practices: Restocking Strategies" using updated market prices and conditions. The same herd replacement options—open or bred heifers, old pairs, young pairs, and open cows—were evaluated.

Table 1: 2014 General Assumptions, South Texas Representative Ranch

Selected Parameter	Assumptions
Operator Off-Farm Income	$24,000/year
Spouse Off-Farm Income	$35,000/year
Family Living Expense	$30,000/year
Available Capital	$95,000
Native Pasture	1,800 acres
Improved Pasture (Bermuda)	200 acres
Ownership Tenure	100%
Royalty Income	Not Included
Hunting Income	$10/acre
Herbicide/Acre (Native Pasture)	$0.83
Herbicide/Acre (Bermuda)	$7.53
Fertilizer/Acre (Bermuda only)	$18.00
Herd Size (January 2014)	0
Herd Size (Normal)	200 Cows, 8 Bulls
Vet, Medicine & Supplies	$25/cow
Salt/Mineral blocks/Year	$26/cow
Steer Weaning Weights	550 lbs.
Heifer Weaning Weights	500 lbs.
Steer Prices (550 wt.)	$2.00/lb.
Heifer Prices (500 wt.)	$1.90/lb.
Cull Cow Prices	$1.00/lb.
Cull Bull Prices	$1.20/lb.
Replacement Bull Prices	$3,000/head
Hay Prices	$120/ton
Range Cube Prices	$0.18/lb.
Pregnancy Testing	$6.50/cow
Bull Testing	$57.63/bull

Assumptions

The Financial And Risk Management (FARM) Assistance strategic planning model was again used to analyze the individual financial impacts of selected potential stocking practices by South Texas ranchers. The five most likely restocking scenarios in South Texas were re-evaluated: 1) open heifers; 2) bred heifers; 3) young pairs (2 year old cows); 4) older pairs (6+ year old cows); and 5) older open cows (6+ years old). As in the original study, these represent choices in age (young vs. old) and reproduction status (open, bred or pairs) that could yield financial differences in restocking costs. Moreover, it is assumed that adequate quality and quantity of these types of cattle were available to purchase at these prices. If they were not, then the results could be different. It is assumed that the ranch was totally destocked due to drought conditions requiring the entire herd to be replaced.

The 2,000-acre ranch in this model includes 1,800 acres of native pasture and 200 acres of established Coastal Bermuda grass used for grazing. Under normal stocking conditions, the cow herd is comprised of 200 cows (1 animal unit to 10 acres) and 8 bulls (1 bull to 25 cows). The general assumptions are given in Table 1. Production inputs, yields, cost, and estimates for overhead charges were based on typical rates for the region. In scenarios 1 (open heifers) and 2 (bred heifers), additional development costs--$13/heifer for vet expenses and $15/heifer additional protein feed costs--in the first 2 years after purchase were assumed. The income from hunting was $10/acre, annually. Remaining cattle proceeds from de-stocking available for purchasing replacements is $95,000 in each scenario. The additional capital needed to purchase cows and bulls is financed at 6.0% for five years. The assets, debts, machinery inventory, and scheduled equipment replacements for the projection period were the same in all management scenarios. It is assumed the ranch has only intermediate term equipment debt prior to financing the cattle purchase. Cattle prices used were based on the Live Oak Livestock Commission Company auction report in Three Rivers, Texas, for May 12, 2014 and a special breeding female sale at Beeville April 4, 2014.

Specific assumptions and inputs related to cow age distribution, weaning weights of calves, calving rates, weaning rate death loss and value were outlined in Focus 2013-2. The publication can be found at *www.farmassistance.tamu.edu* under the publications tab. The ranch pregnancy tests cows and BSE tests bulls. It was assumed that the operation restocks to full capacity or 200 cows in 2014.

The base year for the 10-year analysis of the representative ranch is 2014 and projections are carried through 2023. The projections for commodity and livestock price trends were provided by the Food and Agricultural Policy Research Institute (FAPRI, University of

Missouri) with costs adjusted for projected inflation. Profitability and liquidity were measures chosen to assess the financial implications of each scenario. Profitability measures the extent to which a farm or ranch generates income from the use of its resources. Net cash farm income (NCFI) includes the purchase/sale of breeding livestock, but does not include non-cash expenses such as depreciation. Liquidity measures the ability of a farm or ranch to meet its short-term financial obligations without disrupting the normal operations of the business. The liquidity of the operation may be measured by the year-end cash balance net of taxes. These measures provide information related to the projected variability in the ranch's financial position and performance. And, the analysis provides insight into the risk and return expectations of the ranch throughout the 10-year planning horizon under each management practice.

Table 2: Specific Assumptions, South Texas Representative Ranch

Cow Herd Replacement Scenarios	Selected Parameters		
	Calving Rate	Cow Culling Rate/Year	2014 Replacement Prices/Head
1-Open Heifers	0% in 2014; 90% in 2015; 80% in 2016 85% in 2017-2023	15%	$1,200
2-Bred Heifers	90% in 2014; 80% in 2015; 85% in 2016-2023	15%	$1,400
3-Young Pairs	95% in 2014; 85% in 2015-2023	15%	$1,800
4-Old Pairs	95% in 2014; 85% in 2015-2023	20%	$1,600
5-Open Cows	0% in 2014; 85% in 2015-2023	20%	$1,100

Results

Financial projections for each restocking scenario are given in Table 3. These results represent the average outcomes for net cash farm income, cash flow and other selected financial projections during the 10 years (2014-2023). Figure 1 graphically illustrates the NCFI for the 5 scenarios. The graphic inlay in Figure 1 uses a smaller scale to better highlight and compare NCFI for each scenario for the remaining 9 years (2015-2023) after the initial capital outlay.

All five restocking strategies offer the potential to generate bottom line profits (Table 3 and Figure 1). Higher cattle prices and initial capital outlay in 2014 to replace the herd have a significant impact on the 10-year average bottom-line for each replacement strategy. Moreover, ongoing replacement costs, development costs, calving rate, cow culling rate, and first year calves for sale come into play in evaluating the different scenarios.

Table 3: Projected Annual Financial Indicators (2014-2023)

Scenario	10-Year Averages				Cumulative 10-Yr Cash Flow ($1000)
	Total Cash Receipts ($1000)	Total Cash Costs ($1000)	Net Cash Farm Income ($1000)	Net Cash Farm Income/ Cow ($1000)	
Open Heifers	189.94	148.21	41.74	0.209	611.93
Bred Heifers	229.30	160.10	69.21	0.346	806.00
Young Pairs	234.15	179.08	55.07	0.275	701.79
Old Pairs	251.12	182.95	68.17	0.341	789.33
Open Cows	228.02	152.53	75.49	0.377	828.75

In July 2013, Scenario 2 (bred heifers) had the highest potential for bottom-line profit followed by Scenario 4 (older pairs) and Scenario 5 (open cows). The least profitability was open heifers. Using May 2014 market prices, Scenario 5 (open cows) has the highest potential for net cash farm income (NCFI) at $75,490 or $377/cow, followed closely by Scenario 2 (bred heifers) and Scenario 4 (older pairs) (Table 3). The advantage of open cows over the other strategies is largely due to lower replacement costs which offset the negative impact of no calf in the first year and a higher culling rate (20% vs 15% for heifers and young cows). The advantage of bred heifers over the other three options includes having a first year calf for sale and a lower expected cow culling rate due to age (Table 2). However, older pairs were a very close third behind bred heifers.

Results of the updated analysis show some similarities and differences relative to the 2013 analysis. Scenario 1 (open heifers) again had the lowest expectations for NCFI with

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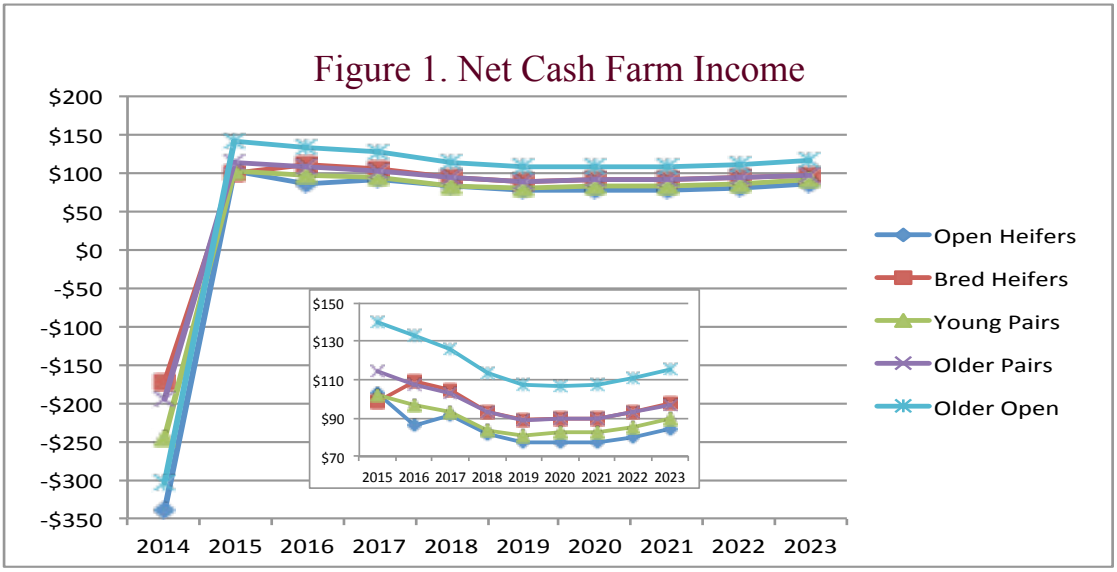

$41,740 or $209/cow. This largely reflects not having a calf to sell the first year and development costs for two years. In Scenario 3 (young pairs), replacement prices have the most significant impact on profitability. NCFI in Scenario 4 (older pairs) is impacted by higher replacement costs and a high culling rate. It is noteworthy that Scenario 5 has an average annual NCFI of $117,680 after the first year, the highest NCFI of any scenario (Figure 1). This is largely due to projected cull cow prices recovering more of the replacement costs of open cows compared to the other four strategies. In Scenario 1 (open heifers), ongoing development costs and no calf sold the first year from replacement heifers continue to reduce profitability.

The beginning cash balance in each scenario is $10,000, and if the operation is profitable, cash is accumulated over the 10-year period. The cumulative after-tax, 10-year cash flow for each scenario is directly correlated to average NCFI. Cumulative cash reserves at the end of the 10-year projection for Scenario 5 are $828,750, compared to only $611,930 for Scenario 1. Off-farm income and hunting contribute substantially to the cash flow of the ranching business in all five scenarios.

Implications

As we move forward, higher feeder and replacement cattle prices in 2014 will have a significant impact on the short-and long-term profitability of cattle operations in South Texas. Depending on the availability of quality replacements, more than one stocking strategy may have to be used to rebuild a herd. In fact, it would be wise to revisit these and other options prior to purchase to re-evaluate them as conditions change in the future.

Based on current 2014 market prices and conditions, restocking with open cows may be the most profitable strategy at present. Prices for open cows in the past year have not increased in proportion to other replacement females, but availability may be an issue due to previous culling. Bred heifers and older pairs also may offer more profitable strategies than young pairs or open heifers. The lower the initial capital outlay to repurchase cattle and the availability of a calf to sell the first year improves NCFI for bred heifers and pairs. Open heifers may be the least profitable way to replace due to not having a calf to sell in the first year and development costs. In evaluating these restocking options, the important point to consider is the order or rank in terms of NCFI, not the actual value. In the previous work, bred heifers and older pairs were more financially profitable than open cows. In this analysis, open cows is now the most profitable.

Actual results will likely vary by producer, management practices, forage conditions, and cattle markets. The culling and calving rates used in the study may or may not reflect actual practices. For example, younger females may have been culled too heavily and older females not heavily enough. Additionally, the availability and quality of females by class may be an issue. This analysis should be used only as a guide in evaluating restocking options and it should be remembered that the best restocking scenario may change from season to season.

Reference

Young, Mac, Joe Paschal, and Steven Klose. Economic Impact of Beef Cattle Best Management Practices: Restocking Strategies. FARM Assistance Focus 2013-2. July 2013

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