FARM Assistance Focus

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Profitability of Beef Cattle Best Management Practices in South Texas: Calf Management Update

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Successful managers will find ways to improve their operations by adopting better and cost-effective approaches to doing things.

Spring rains in 2014 have improved forage conditions in most of Texas which has increased interest in herd rebuilding. As a result, demand and prices for feeder calves and prices for replacements have increased. Cow-calf producers in South Texas routinely make management decisions to adapt to weather, market and economic conditions. Various calf management practices can be critical to herd performance and profits. Successful managers will find ways to improve their operations by adopting better and cost-effective approaches to doing things.

"Best management practices" are strategies to improve herd performance and ranching profitability. These often include calf management practices such as vaccinating, castrating, implanting, and deworming. Although the financial benefits are well known, few ranchers take the opportunity to implement these practices that will help them improve profitability.

Better calf management can improve herd performance and weaning weights. According to the Beef 2007-2008 National Animal Health Monitor Survey report of beef producers, vaccination of calves for clostridial diseases is practiced by 6 out of 10, castration by 5 out of 10, implanting by 1 out of 10, and deworming by 1 out of 3 producers. These low rates of adoption of these management practices cost beef producers, especially smaller ones who practice them the least (USDA 2008). Research is also cited in FARM Assistance Focus 2010-3 "Economic Impact of Beef Cattle Best Management Practices in South Texas: Calf Management" (Ringer 2010). This publication is an update, based on 2014 market conditions and prices, to the 2010 study. It illustrates the financial implications of using selected calf management practices to optimize the profitability of South Texas ranching operations.

Assumptions

The Financial And Risk Management (FARM) Assistance strategic planning model was used to illustrate the individual financial impacts of using calf management practices by South Texas ranchers. Five scenarios were evaluated: 1) not using clostridial vaccinations, implants, castration, growth implants or deworming (no calf management); 2) administering clostridial vaccinations to all calves; 3) castrating bull calves and implanting all calves; 4) deworming all cattle and calves; and 5) using all selected management practices (clostridial vaccinations, castrating and implanting, and deworming).

The 2,000-acre ranch in this model consists of 1,800 acres of native pasture and 200 acres of established Coastal Bermuda used for grazing only. Under normal stocking conditions, the cow herd includes 200 cows (1 animal unit to 10-acre stocking rate) 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 2014, the income from hunting was $10/acre. 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 debt. Cattle prices used were from the Live Oak Livestock Commission Company auction report in Three Rivers, Texas, for June 9, 2014. In Scenarios 3, 4 and 5, a market price slide of $.04 for each 25 lbs. of weight gain was assumed to account for higher calf weights.

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
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)	$0.90
Herbicide/Acre (Bermuda)	$8.15
Fertilizer/Acre (Bermuda only)	$18.00
Herd Size	200 Cows, 8 Bulls
Cow Herd Replacement	Bred cows
Vet, Medicine & Supplies	$34.34/cow
Salt/Mineral blocks/Year	$23.60/cow
Hay Fed/Cow/Year	1.5 tons
Protein Cubes Fed/Cow/Year	100 lbs.
Calving Rate	90%
Cow Culling Rate/Year	10%
Steer Weaning Weights	525 lbs.
Heifer Weaning Weights	475 lbs.
Steer Prices	$2.10/lb.
Heifer Prices	$2.00/lb.
Cull Cow Prices	$1.10/lb.
Cull Bull Prices	$1.20/lb.
Bred Cow Prices	$1,625/head
Replacement Bull Prices	$3,500/head
Hay Prices	$100/ton
Bulk Range Cube Prices	$.18/lb.
Pregnancy Testing	$6.35/cow
BSE Testing	$53.75/bull
Clostridial Vaccination	$1.11/calf
Castration & Growth Implants	$1.74/calf
Deworming Injection	$2.59/calf
Extra Day Labor/Calf Practice	$2/calf

Specific assumptions were made in each scenario are given in Table 2. A typical ranch was assumed to pregnancy test cows and BSE test bulls and has a 90% calving rate. Weight gain and death loss assumptions in the scenarios were based on research conducted by Texas A&M AgriLife Research and Extension Service. The clostridial vaccination is a 7-way injection which reduces calf death loss.

Table 2: Specific Assumptions for a South Texas Representative Ranch (200 Cows)

Scenario	Clostridial Vaccinations ($/Calf)	Implants & Bull Calf Castration ($/Calf)	Deworming ($/Calf)	Extra Day Labor ($/Calf)	Calf Death Loss	Calf Weaning Weights	
						Steers (lbs.)	Heifers (lbs.)
1-No Calf Management	n/a	n/a	n/a	n/a	5%	525	475
2-Clostridial Vaccinations	1.11	n/a	n/a	2.00	1%	525	475
3-Castration & Implants	n/a	1.74	n/a	2.00	6%	550	500
4-Deworming	n/a	n/a	2.59	2.00	5%	550	500
5-All Calf Management	1.11	1.74	2.59	5.00	2%	575	525

A review of previous research (Ringer 2010) indicates that castrating and implanting steers and deworming can increase weight gain by 5% (approximately 25 lbs.) at weaning. With the use of all selected calf management practices (vaccinating, castrating, implanting, and deworming), it was assumed that average calf weights would increase 10%. In scenarios 4 and 5, calves are dewormed once a year.

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 follow projections provided by the Food and Agricultural Policy Research Institute (FAPRI, University of Missouri) with costs adjusted for inflation over the planning horizon. 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), one measure of profitability, includes the purchase and sale of breeding livestock, but does not include non-cash items 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 ending cash balance net of taxes. These measures provide financial information with respect to the projected variability in the ranch's financial position and performance expectations of the ranch throughout the 10-year planning horizon under each calf management practice.

Results

Financial projections for each calf management scenario are given in Table 3. These results represent the average outcomes for net cash farm income, cash flow and other financial projections for 2014-2023. Figure 1 illustrates the range of possibilities comparing no calf management to increasing levels calf management. It is worth noting that off-farm income and hunting contributes somewhat to the cash flow of the ranching business; however, this effect is present in all scenarios.

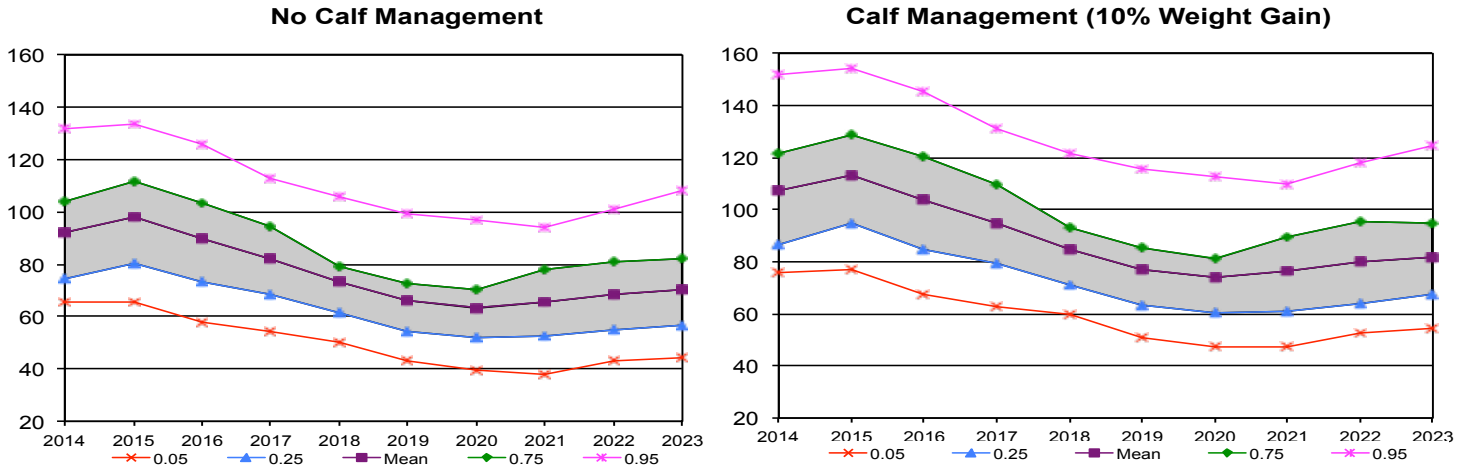
All four calf management practices evaluated offer the potential to significantly increase profitability of an operation (Table 3 and Figure 1). With no selected calf management practices (Scenario 1), the average net cash farm income (NFCI) is $76,970/year or $385/cow/year and $428/calf/year. The operation begins the first year of each scenario with a total cash balance of $10,000, and if profitable, accumulates cash over the 10-year period. Average cash reserves, at the end of the 10-year projections for Scenario 1 is $2,159/cow and $2,399/calf.

Table 3: 10-Year Average Financial Indicators for a South Texas Representative Ranch (200 Cows)

Scenario	10-Year Averages Per Year					Cumulative	
	Total Cash Receipts ($1000)	Total Cash Costs ($1000)	Net Cash Farm Income ($1000)	Net Cash Farm Income/Cows ($1000)	Net Cash Farm Income Calf ($1000)	10-Yr Cash Flow/Cow ($1000)	10-Yr Cash Flow/Calf ($1000)
1-No Calf Management	205.00	128.03	76.97	0.385	0.428	2.159	2.399
2-Clostridial Vaccinations	212.38	128.59	83.79	0.419	0.466	2.276	2.529
3-Castration & Implants	207.42	128.62	78.79	0.394	0.438	2.192	2.436
4-Deworming	209.31	128.61	80.39	0.403	0.448	2.225	2.472
5-All Calf Management	219.11	129.75	89.36	0.447	0.496	2.376	2.640

Implementing cost-effective calf management practices such as blackleg vaccinations, castrations and implants, and deworming offer cow-calf producers the potential to improve profitability.

Figure 1. Projected Variability in Net Cash Farm Income for No Calf Management vs. Calf Management and 10% Weight Gain



Clostridial vaccinations (Scenario 2) offer a significant potential for improving profitability and financial performance of a cow-calf operation, assuming the death loss reduction from 5% to 1% is achieved (Table 2). NCFI averages $83,799/year over the 10-year projection, 8.9% more than the no vaccination scenario. The returns per cow are $419/cow, $34/cow more than the no vaccination scenario. Returns per calf were $466/calf, an increase of $38/calf. These increases were due to a reduction in death loss. Average cash reserves at the end of the 10-year period increase $117/cow and $130/calf on average.

Castration and growth implants (Scenario 3) also increased profitability based on the case study assumptions (Table 2). NCFI averages $78,790/year, 2.4% more than Scenario 1. This amounts to a $9/cow and $10/calf increase over doing nothing (Scenario 1). Average ending cash reserves improve by $33/cow and $37/calf. A $.04/cwt. market price slide was assumed due to heavier calves (average 25 lbs. heavier) reduces the potential gains in income and cash reserves. A 1% increase in death loss due to castrating was also assumed.

Deworming (Scenario 4) also offers potential gains to the bottom-line of a cow-calf operation. NCFI averages $80,390, 4.4 % more than Scenario 1 (Table 2). This is a net increase of $18/cow and $20/calf over Scenario 1. Ending cash reserves increased by $66/cow and $73/calf. Gains in NCFI and cash reserves are again tempered by the $.04/cwt market price slide.

All calf management (Scenario 5) combines the benefits of clostridial vaccinations, castration/implants, and deworming. Calves are expected to be healthier, grow faster, and suffer less death loss. NCFI averages $89,360, and represents $447/cow and $496/calf per year (Table 2 and Figure 1). This reflects a 16.1% or $12,390 ($62/cow and $68/calf) increase over Scenario 1 (no calf management practices). Ending cash reserves increase by 10.1%. The market price slide was $.08/cwt for a 50 lb. average weight increase.

Implications

The financial performance and condition of most South Texas cow-calf operations will continue to be supported by off-farm income, hunting, and other sources of income. At the same time, implementing cost-effective calf management practices such as blackleg vaccinations, castrations and implants, and deworming offer cow-calf producers the potential to improve profitability.

Actual results will likely vary by producer, management practices, and cattle markets. The actual "slide" in calf prices due to extra weight gain of 5% to 10% will likely vary according to existing market conditions and will directly impact overall profitability. Cow-calf producers should continue to implement best management practices that improve the bottom-line and financial performance of their operation.

Reference

Ringer, Cody, MacYoung, Joe Paschal, and Steven Klose. Economic Impact of Beef Cattle Best Management Practices in South Texas: Calf management. FARM Assistance Focus 2010-3. August 2010.

USDA. Beef 2007-08, Part 1: Reference Beef Cow-Calf Management Practices in the U.S. USDA-Aphis-VS, CEAH. Fort Collins, CO. 2008.

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