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Economic Analysis of Beef Operations: Factors Affecting Profitability

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The Cow-calf Industry as a Business

- The Cow-calf Industry is an “Asset Management” business that must focus on the next seven years.
  - It is not a margin business
    - Buy and sell margins
  - Our Primary Assets are continually eroding
    - Our Breeding Herd
      - Average Replacement Rate is 16%
    - Machinery and Equipment
    - Fencing and Improvements
  - Approximately 45-50% of our total costs are Fixed Costs, not variable.
  - In order to be sustainable, we must focus on “net worth” and not “cash flow”
Benchmarking Your Analysis

- Be careful; you need to be 100% sure that what you are comparing to is calculated exactly as you calculate it
  - Weaning percentage
  - Total cost to run a breeding female annually
- Where to find the database to compare to?
Southwest Beef Cow-calf SPA

- A few points of where you might want to be as a cow-calf operation
  - Thrivers
  - Survivors
  - Nose-divers

- Recognizing:
  - What you control
    - In the short run
    - In the long run
  - What you don’t control
Southwest SPA Results

- 2007 to 2012
- 60 herds
- 47 to 2,972 plus
- 25,324 females
- Average=422
Net Income per Female by Size

Expenses Include Depreciation and Owner Labor Expense
Financial Net Income Per Female
Database Average = -$50.31
Land Resources: Acres per Female
Average = 22.5 acres/female
Land Resources: Percent Land Owned
Average = 56.2 percent
Fiscal Year Rainfall Received
Average = 88.1 percent of normal
Production Performances
Database Average = 82.0%
Weaning Weights
Database Average = 517.9 lbs.
Impact of Percent Normal Rainfall Received

\[ y = 292.6 + 4.0675x - 0.0156x^2 \]

\[ R^2 = 0.2279 \]
Pounds Weaned per Exposed Female

Database Average = 441.9 lbs.
Impact of Percent Normal Rainfall Received

The relationship between Percent Normal Rainfall Received and Pounds Weaned per Exposed Female can be described by the following equation:

\[ y = 227.14 + 3.6763x - 0.0145x^2 \]

with

\[ R^2 = 0.1625 \]
Total Cost per Female
Database Average = $588.97
Total Cost of Production & Net Income

\[ y = 353.23 - 0.7308x + 7E-05x^2 \]

\[ R^2 = 0.327 \]
Texas SPA
Expense Breakdown per Female

Average Total Cost per Female = $588.97

Average of 60 herds, 2007-2011
## Top 5 Expenses

<table>
<thead>
<tr>
<th>Thrivers</th>
<th>Survivors</th>
<th>Nose Divers</th>
<th>Average</th>
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</thead>
<tbody>
<tr>
<td>Feed Purchased</td>
<td>Depreciation</td>
<td>Depreciation</td>
<td>Labor/Management</td>
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<tr>
<td>$83.96</td>
<td>$103.40</td>
<td>$119.08</td>
<td>$97.55</td>
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<tr>
<td>Labor/Management</td>
<td>Labor/Management</td>
<td>Labor/Management</td>
<td>Depreciation</td>
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<tr>
<td>$80.88</td>
<td>$98.14</td>
<td>$113.66</td>
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<tr>
<td>Depreciation</td>
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<tr>
<td>$62.06</td>
<td>$87.08</td>
<td>$102.39</td>
<td>$91.14</td>
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<td>Rents</td>
<td>Interest</td>
<td>Repairs/Maint</td>
<td>Repairs/Maint</td>
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<tr>
<td>$41.64</td>
<td>$40.45</td>
<td>$52.78</td>
<td>$43.24</td>
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<tr>
<td>Repairs/Maint</td>
<td>Fertilizer</td>
<td>Fertilizer</td>
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<tr>
<td>$39.70</td>
<td>$39.85</td>
<td>$49.69</td>
<td>$37.43</td>
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Cost of Production
Database Average = $130.61
Price Rec’d versus Breakeven

<table>
<thead>
<tr>
<th></th>
<th>Thrivers</th>
<th>Survivors</th>
<th>Nose-divers</th>
<th>Mean</th>
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<tbody>
<tr>
<td>Rec’d</td>
<td>124.28</td>
<td>116.09</td>
<td>107.39</td>
<td>115.92</td>
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<td>Breakeven</td>
<td>92.86</td>
<td>130.49</td>
<td>168.49</td>
<td>130.61</td>
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</tbody>
</table>
Price Rec’d versus Average Weaning Weight

$116.00
Total Investment at Cost and Market Database Average = $3,190 & $7,687
Rate of Return on Assets
Database Average = 0.43% & 0.83%
Reproduction/Production Goals

- **Pregnancy Rate**: Greater than 90.0%
  - This includes all females
    - Including
      - 1\textsuperscript{st} calf heifers
      - 2\textsuperscript{nd} calf heifers
  - Calving Rate: Greater than 85.0%

- **Weaning Percentage**: Greater than 82.0%

- Your management determines these.

- Any less than these, you need to figure out why. Where is the loss occurring?

- Any more than these may cost too much.
Reproduction/Production Goals

- Average Weaning Weights of all calves: 520 pounds.
- While your management determines this to a degree (ie. Genetics, etc.), mother nature can always trump you (ie. Rainfall after calving).
- Combine this with an 82% weaning percentage, then pounds per female will be 426 pounds.
Production Efficiencies

- Are you stocked right for you land resources?
  - Affects reproduction, weaning weights, feed costs, etc.
    - Remember, if she doesn’t get bred, everything else that follows is an expense with no income to offset it.

- Are my females “sized” right?

- Are your females weaning an appropriate weighted calf annually for your resources?
Financial Goals

- Total Costs should be below $600.
- Top three expenses (Depreciation, Labor & Management, and Feed Purchased) should account for at least 45% of your total expense ($270 per female).
- That gives you $330 for everything else.
- Ask yourself: Is this __________ that I am considering purchasing going to improve my reproduction and/or production efficiency?
  - Feed
  - Labor (save one more calf)
  - New pickup
Southwest SPA Results
2007 - 2011

• **Average Gross Revenue** = $538.65
• **Average Total Costs** = $588.97
• **Average Net Income** = -$50.31
• **Rate of Returns on Assets**
  ◦ **Cost Basis** = 0.43%
  ◦ **Market Basis** = 0.83%

• **$718.34 per weaned calf**