Factors to consider when making economic decisions in larger grazing operations

Dr. Trey Patterson, CEO, Padlock Ranch Company
August, 2016
The Frustration

“This decision making is driving me crazy”
• Corn silage is our staple crop for calves
Padlock Elements of Purpose

- Financial Excellence
- Human Excellence
- Natural Resource Sustainability
- Positive Member of Community
  - Local
  - Industry
- Family Emblem
Factors to Consider in Making Economic Decisions

- Efficient and Correct use of Natural Resources
- Costs and Cost/Benefit
- System Integration
Correct Use of Range Resource

- Diversity in Plants
- Little Bare Ground
- Thriving Wildlife
- Healthy Riparian Areas
- Optimal Stocking Rates
Stocking Rate

- Overstocking can destroy your resource and potential for future productivity

- Understocking is not efficient
  - Must dilute overhead costs with turnover
  - Negative effects on return on assets

- Stocking rate is a function of numbers * time per unit of area
Understanding Costs

Fixed Costs: Those costs that do not depend on output
- Labor
- Insurance
- Depreciation

Variable Costs: Dependent on output
- Feed
- Vaccine
- Fertilizer
Understanding Cost Dilution

Much like a factory, cost per unit is decreased as throughput increases.

If you have a huge investment in the factory, like with ranching, you want to optimize throughput:
  - Not more than factory can handle
  - But all that the factory can handle
Grazing Management

- Do not want plants bitten multiple times when growing
  - The plant factory cannot get established

- Create periods of rest for the plant factory to replenish capital reserves
  - Roots

- Leave appropriate residue
Grazing Management

- Critical time is during the growing season

- Ideally, move cattle in days, not weeks, when rapidly growing

- From a cost control standpoint, cow-man ratio is very important
  - 2-3 people per 2000 cow units
Grazing Management

With May/June calving...moving baby pairs and branding when you need to be moving cows rapidly

Find balance between ideal cost management and ideal range management
– 2-4 wk durations
Grazing Management

When moving baby pairs and managing range, need skilled people that understand grass, animal handling and husbandry, and nutrition

This is a combination of science, art, and economics
Range Management

Cross fencing can help manage duration
- 5,000 acres pasture for one month or….
- Two 2,500 acres pastures for 2-wks each

Cross-Fencing does not have to be elaborate
- Single or double strand electric
- Must get past paradigm that it has to be full proof
Water may be limiting factor

- Water is critical

- We are constantly working to improve water

- Capital investment in water development is top priority
Inventory Range Resource as a Whole

Divide range country into best use:

- Summer Country
  - Good water, spring growth, etc.
  - May have pine trees and heavy winter snow

- Winter Country
  - Side hills blow off
  - Water marginal in quantity/quality for summer

Winter area stocked lightly in summer and feed stockpiled for winter grazing
Grazing Efficiency

- Dry cows in winter need less water
  - Will use snow as partial water source
  - We do not ask them to rely on snow only

Part of the herd may do poorly; ethical considerations

- Grazing management and appropriate timing of grazing can increase ranch carrying capacity!
Economic Efficiency

Factors in Use of Natural Resource
- Stocking rate
- Rotational grazing
- Water development
- Cross fencing/managing timing
- Matching best season of use
- Costs

Profitability is directly impacted by how well land resources are utilized
Understanding Costs

Accrual Enterprise System
- Cost-based accounting
- Tracks by ranch unit, crop, equipment type
- Livestock and crops booked at cost

Basis established on crops and livestock

Depreciation is a large cost
<table>
<thead>
<tr>
<th>Year</th>
<th>$ per head</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>830</td>
</tr>
<tr>
<td>2008</td>
<td>840</td>
</tr>
<tr>
<td>2009</td>
<td>898</td>
</tr>
<tr>
<td>2010</td>
<td>897</td>
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<td>2011</td>
<td>936</td>
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<td>2012</td>
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<tr>
<td>2013</td>
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<tr>
<td>2014</td>
<td>967</td>
</tr>
<tr>
<td>2015</td>
<td>983</td>
</tr>
</tbody>
</table>
**Range Development at Padlock: 2015**

<table>
<thead>
<tr>
<th>Item</th>
<th>Range Developed</th>
<th>Feedlot Developed</th>
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</thead>
<tbody>
<tr>
<td>Number hd</td>
<td>1093</td>
<td>1026</td>
</tr>
<tr>
<td>May Wt (May 3-11), lbs</td>
<td>662</td>
<td>802</td>
</tr>
<tr>
<td>AI Wt (July 23), lbs</td>
<td>836</td>
<td>902</td>
</tr>
<tr>
<td>ADG (May-July), lbs</td>
<td>2.36</td>
<td>1.22</td>
</tr>
<tr>
<td>Pregnancy, %</td>
<td>86.1</td>
<td>87.1</td>
</tr>
<tr>
<td>Feed Cost, $/hd/d</td>
<td>$0.20</td>
<td>$1.20</td>
</tr>
<tr>
<td>Range Cost, $/hd/d</td>
<td>$0.50*</td>
<td></td>
</tr>
<tr>
<td>Total Cost (120 d)</td>
<td>$84</td>
<td>$144</td>
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</table>

*$5.10/acre; 0.25 AUM/acre; 1 heifer = 0.75 AUM
Relationship of Cost to Production

Low Development Costs
- Open yearlings can be profitable
- Less livestock depreciation
- Less loss on replacing open cows

High Development Costs
- Reproductive rate more important
- More pressure on production and marketing
Systems Question?

- Raising replacements on range with no hay works in our system (May calving)

- Range development reduces cost to put a heifer in the herd......less depreciation

- Wintering heifers on range can result in less cows or feeding cows......increased cost per calf weaned
## Capital Budgeting: NPV

<table>
<thead>
<tr>
<th>Age</th>
<th># cows</th>
<th>Preg%</th>
<th>Cull%</th>
<th>Calf $</th>
<th>Cull $</th>
<th>Cost/c</th>
<th>$ flow</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>100</td>
<td>88</td>
<td>1</td>
<td>$174</td>
<td>$75</td>
<td>$550</td>
<td>$31,732</td>
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<td>86</td>
<td>88</td>
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<tr>
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<td>62</td>
<td>93</td>
<td>5</td>
<td>$174</td>
<td>$75</td>
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<td>5</td>
<td>$174</td>
<td>$75</td>
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<td>$20,264</td>
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<td>$174</td>
<td>$75</td>
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<td>$16,785</td>
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<td>8</td>
<td>41</td>
<td>93</td>
<td>5</td>
<td>$174</td>
<td>$75</td>
<td>$657</td>
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<tr>
<td>9</td>
<td>36</td>
<td>93</td>
<td>5</td>
<td>$174</td>
<td>$75</td>
<td>$676</td>
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<td>11</td>
<td>25</td>
<td>90</td>
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<td>$174</td>
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<td>19</td>
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<td>50</td>
<td>$174</td>
<td>$75</td>
<td>$740</td>
<td>$13,301</td>
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<tr>
<td>13</td>
<td>7</td>
<td>80</td>
<td>87</td>
<td>$174</td>
<td>$75</td>
<td>$761</td>
<td>$7,014</td>
</tr>
</tbody>
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Average Cow Age: 5.6 yrs; replacement rate 17.4%: NPV = $1821
## Capital Budgeting: NPV

<table>
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<tr>
<th>Age</th>
<th>Avg Age 5.6</th>
<th>Avg Age 5.3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># cows</td>
<td>Preg %</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>88</td>
</tr>
<tr>
<td>3</td>
<td>86</td>
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<td>4</td>
<td>71</td>
<td>93</td>
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<td>5</td>
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<td>....</td>
<td>....</td>
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<td>19</td>
<td>85</td>
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<td>13</td>
<td>7</td>
<td>80</td>
</tr>
</tbody>
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Effect of Longevity on NPV
(5-yr avg prices; weigh-up cow marketing)

We can afford to invest some money in keeping young cows bred.
Important to Understand Cost Leverage Points

- Padlock is part leased/part deeded

- We are concerned about rising lease cost on the Crow Indian Reservation….results in considering strategy of running on those leases

- Do we understand the impact to the entire system? What is leverage?
Increased lease cost effect on cost/calf

60% increase in lease cost results in a 6.9% increase on cost/calf at year end.
System Management

- Look for opportunities to reduce cost and increase revenue simultaneously

- Flexibility: Execution of alternatives
  - Drought Management

- Keeping balance for what is important
Marketing Built into the System

- Cows leaving our system are sorted and managed based on age, pregnancy status, and condition/soundness

- Marketing is tied to type of cow and feed availability

- Young, open cows are exposed for fall calving and sold in spring
  - Added salvage value serves to increase net present value of young cows
Cull Cow Value/Replacement Heifer Cost

<table>
<thead>
<tr>
<th>Year</th>
<th>Cows/Repl</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
<td>82%</td>
</tr>
<tr>
<td>2008</td>
<td>87%</td>
</tr>
<tr>
<td>2009</td>
<td>59%</td>
</tr>
<tr>
<td>2010</td>
<td>89%</td>
</tr>
<tr>
<td>2011</td>
<td>98%</td>
</tr>
<tr>
<td>2012</td>
<td>102%</td>
</tr>
<tr>
<td>2013</td>
<td>102%</td>
</tr>
<tr>
<td>2014</td>
<td>145%</td>
</tr>
<tr>
<td>2015</td>
<td>156%</td>
</tr>
</tbody>
</table>
Padlock Heifer System

- Heifers bred to Wagyu Bulls: AI plus clean-up period
- Heifers calve in May on green grass: NO calving barns...NO big calving crews
- Wagyu calves sold as a premium
Can you feed through a drought?

It depends:
- Feed costs
- Current and expected market conditions
- Duration of drought

It is expensive to rebuild the cow herd!
What do we do now?
• After 2012 fires, early weaning calves in August
• 280 lb. May/June-born calves
• Weaned whole ranch Aug-Nov
• Most calves weaned Aug-Oct
Flexibility in the Program

- Calves marketed earlier and at somewhat lighter weights than normal
  - Free up feed to maintain base cow herd
  - Can be flexible with timing

- Purchased hay and grain

- Looked for ways to cheapen cow feed costs....limit feeding
Factors to Consider in Making Economic Decisions

- Efficient and Correct use of Natural Resources
- Costs and Cost/Benefit
- System Integration
Building the System

Excellent People

Natural Resources

Production and Marketing

Financial

Family/Purpose
Thank You!