Managing Risk in Beef Cattle Operations

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Risk: What is it?

- Is it a disease outbreak? (BRD, Trich., etc.)
- Is it when the neighbors bull visits?
- Is it when a land lease is lost?
- Is it the loss of an employee?
- Is it when the lender stops lending?
- Is it when the cows get out and on the road?
- Is it when input prices double?
- Is it adverse weather conditions?
What are you willing to risk?
How much risk is enough?
Most farmers define risk as “an event which results in a significant loss.”
The word risk is derived from the Italian word *risicare*, which means, “to dare.”

- This implies an element of choice.
- It also implies there is some potential reward associated with taking the risk or dare.
Economic theory suggests there is a tradeoff between risk and reward.

Rational people that are willing to accept higher levels of risk expect higher levels of return if successful.
Two factors to understand when discussing risk.

1) The chance/probability of an adverse event occurring.

2) The potential negative financial impact (magnitude).
Talking about risk

- Sometimes there are cases where the probability of an event occurring with a negative impact are almost certain, but the financial loss is small if it does happen.
  - Calves contracting worms at some point is almost 100 percent, but the loss usually only ranges from $15 to $25 per head.
Other times there are cases where the probability of an event occurring with a negative impact is small, but the financial loss could be very large.

- Severe drought may result in a loss of as much as $200 per head.
Types of risk

- Production
- Price
- Financial
- Casualty
- Technological
- Policy
- Legal
- Personal/Personnel
- Other
Production risks

- Herd health
- Nutrition
- Forage production
- Supplemental feed
- Labor
- Weather
- Others
Price risks

- Input purchase prices
  - Chemical
  - Feed
  - Fertilizer
  - Fuel
  - Labor
  - Seed
  - Stocker calves

- Output selling prices
  - Feeder cattle
  - Chronics
  - Miscellaneous
Casualty risks

- Loss of animals
- Loss of facilities
- Loss of machinery/equipment
- Other losses
Financial risks

- Profit/Loss
- Interest rates
- Length of terms
- Requirements to acquire loans
- Others
Technological risks

- Technology obsolescence (genetics, chemicals, machinery,...)
- Adopting technology that becomes obsolete rapidly (computer programs,...)
- Not adjusting the business model to make full use of adopted technologies
Policy risks

- Farm Bill
- Regulations
- Tax policy
- Trade policy
- Others
Legal risks

- Compliance
- Enforcement
- Defense
- Income taxes
- Estate taxes
- Others
Personal/Personnel risks

- Employee loss due to
  - Attitude
  - Health
  - Life
  - Labor/Mgt. decisions
  - Changing jobs
  - Other factors

- Employer loss due to
  - Attitude
  - Health
  - Divorce
  - Labor/Mgt. decisions
  - Other factors
Ways to manage risk

1) Avoid risk
2) Assume risk
3) Reduce risk
4) Transfer risk
Avoid risk

- Identify a source of risk and take one or more actions to avoid it
  - Do not take “the dare”
  - Market your resources to others
  - Pre-buy inputs to insure availability and price
  - Others
Assume risk

- Identify the risk and take it head on
  - Adverse weather
  - Parasites
  - Death loss
  - Output price
  - Others
Reduce risk

- Identify a risk and take action to reduce it
  - BRD, Black Leg, Lepto-Vibrio (vaccinate to prevent and/or buy from safer sources)
  - Parasites (deworm, fly control, etc.)
  - Other
Transfer risk

- Identify the source of risk and pass it on to someone else
  - Forward contracts
  - Futures contracts
  - Insurance
  - Other
Specific ways to manage cost of production risks

- Develop a plan to manage COP risks
- Perform management practices correctly and in a timely fashion
- Know your unit cost of production (UCOP)
- Know the range of your UCOP
- Know the sensitivity of factors affecting profitability
- Use seasonal price trends
- Use input price protection
- Seek lower cost substitutes
- Buy in bulk
- Utilize custom hire services
- Minimize waste
- Credit Management
- Others
Develop a plan to manage COP

- Identify cost of production risks
- Develop strategies to avoid/assume/reduce/transfer COP risks
- Specify who is responsible to implement risk management strategy
- Record when and what action was taken
- Evaluate the action and why it was successful or unsuccessful
Perform management practices correctly and promptly

- Work stocker calves on arrival to farm
- Monitor health of calves several times a day
- Treat calves when symptoms are noticed
- Keep a log of treatments
- Minimize waste (feed, labor, etc.)
Know unit cost of production

- Calculate UCOP frequently
  
  \[ UCOP = \frac{\text{Total COP}}{\text{Total production}} \]

- Determine what factors change UCOP
- Estimate an acceptable UCOP range
- Produce based on available resources
- Others
<table>
<thead>
<tr>
<th>Item</th>
<th>Total $</th>
<th>Portion</th>
<th>Allocated</th>
<th>$/Head</th>
<th>$/Cwt.</th>
<th>$/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Feeder Calves</td>
<td>$360,000</td>
<td>100%</td>
<td>$360,000</td>
<td>$720.00</td>
<td>$102.86</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>2 Trucking</td>
<td>$ 4,000</td>
<td>100%</td>
<td>$ 4,000</td>
<td>$ 8.00</td>
<td>$ 1.14</td>
<td>$ 11.11</td>
</tr>
<tr>
<td>3 Land Rent</td>
<td>$  -</td>
<td>50%</td>
<td>$   -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>4 Seed</td>
<td>$ 6,500</td>
<td>100%</td>
<td>$ 6,500</td>
<td>$13.00</td>
<td>$ 1.86</td>
<td>$ 18.06</td>
</tr>
<tr>
<td>5 Chemicals</td>
<td>$ 1,500</td>
<td>100%</td>
<td>$ 1,500</td>
<td>$ 3.00</td>
<td>$ 0.43</td>
<td>$  4.17</td>
</tr>
<tr>
<td>6 Fertilizer</td>
<td>$12,500</td>
<td>100%</td>
<td>$12,500</td>
<td>$25.00</td>
<td>$ 3.57</td>
<td>$ 34.72</td>
</tr>
<tr>
<td>7 Feed</td>
<td>$12,500</td>
<td>100%</td>
<td>$12,500</td>
<td>$25.00</td>
<td>$ 3.57</td>
<td>$ 34.72</td>
</tr>
<tr>
<td>8 Mineral &amp; Salt</td>
<td>$ 1,500</td>
<td>50%</td>
<td>$ 750</td>
<td>$ 1.50</td>
<td>$ 0.21</td>
<td>$  2.08</td>
</tr>
<tr>
<td>9 Vet. &amp; Med.</td>
<td>$ 6,500</td>
<td>100%</td>
<td>$ 6,500</td>
<td>$13.00</td>
<td>$ 1.86</td>
<td>$ 18.06</td>
</tr>
<tr>
<td>10 Fence Maintenance</td>
<td>$ 1,000</td>
<td>100%</td>
<td>$ 1,000</td>
<td>$ 2.00</td>
<td>$ 0.29</td>
<td>$  2.78</td>
</tr>
<tr>
<td>11 Fuel</td>
<td>$ 2,000</td>
<td>100%</td>
<td>$ 2,000</td>
<td>$ 4.00</td>
<td>$ 0.57</td>
<td>$  5.56</td>
</tr>
<tr>
<td>12 Supplies</td>
<td>$ 1,000</td>
<td>50%</td>
<td>$ 500</td>
<td>$ 1.00</td>
<td>$ 0.14</td>
<td>$  1.39</td>
</tr>
<tr>
<td>13 Utilities</td>
<td>$ 1,200</td>
<td>50%</td>
<td>$ 600</td>
<td>$ 1.20</td>
<td>$ 0.17</td>
<td>$  1.67</td>
</tr>
<tr>
<td>14 Misc. Expenses</td>
<td>$  750</td>
<td>100%</td>
<td>$ 750</td>
<td>$ 1.50</td>
<td>$ 0.21</td>
<td>$  2.08</td>
</tr>
<tr>
<td>15 Marketing Expenses</td>
<td>$  5,500</td>
<td>100%</td>
<td>$ 5,500</td>
<td>$11.00</td>
<td>$ 1.57</td>
<td>$  15.28</td>
</tr>
<tr>
<td>16 Machinery Depreciation</td>
<td>$  7,500</td>
<td>50%</td>
<td>$ 3,750</td>
<td>$ 7.50</td>
<td>$ 1.07</td>
<td>$  10.42</td>
</tr>
<tr>
<td>17 Hired Labor</td>
<td>$14,000</td>
<td>50%</td>
<td>$ 7,000</td>
<td>$14.00</td>
<td>$ 2.00</td>
<td>$  19.44</td>
</tr>
<tr>
<td>18 Family Living Withdrawal</td>
<td>$30,000</td>
<td>50%</td>
<td>$15,000</td>
<td>$30.00</td>
<td>$ 4.29</td>
<td>$  41.67</td>
</tr>
<tr>
<td>19 Interest</td>
<td>$12,285</td>
<td>100%</td>
<td>$12,285</td>
<td>$24.57</td>
<td>$ 3.51</td>
<td>$  34.13</td>
</tr>
<tr>
<td>20 Equity Capital</td>
<td>$18,000</td>
<td>50%</td>
<td>$ 9,000</td>
<td>$18.00</td>
<td>$ 2.57</td>
<td>$  25.00</td>
</tr>
<tr>
<td>21 Growth Capital</td>
<td>$10,000</td>
<td>50%</td>
<td>$ 5,000</td>
<td>$10.00</td>
<td>$ 1.43</td>
<td>$  13.89</td>
</tr>
<tr>
<td>22 Roth IRA (retirement)</td>
<td>$  6,000</td>
<td>50%</td>
<td>$ 3,000</td>
<td>$ 6.00</td>
<td>$ 0.86</td>
<td>$  8.33</td>
</tr>
</tbody>
</table>

| Breakeven Price (rows 1-19)  | $452,635 | $ 905  | $ 129  | $  1,257 |
| Price Objective (rows 1-22)  | $469,635 | $ 939  | $ 134  | $  1,305 |
Know the sensitivity of factors affecting profitability

<table>
<thead>
<tr>
<th>Sensitive Factor</th>
<th>Unit Change</th>
<th>Change in Net Revenue/Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Daily Gain</td>
<td>+1/10 lb./day</td>
<td>+$16.10</td>
</tr>
<tr>
<td>Death Loss</td>
<td>+1%</td>
<td>-$8.05</td>
</tr>
<tr>
<td>Feed Price</td>
<td>+$10/ton</td>
<td>-$8.19</td>
</tr>
<tr>
<td>Feeder Price</td>
<td>+$1/cwt.</td>
<td>+$7.00</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>+1%</td>
<td>-$6.43</td>
</tr>
<tr>
<td>Stocker Price</td>
<td>+$1/cwt.</td>
<td>-$4.50</td>
</tr>
</tbody>
</table>
Use seasonal price trends

Soybean Hulls Seasonal Price Index
Memphis, 2003-2012
Use input price protection

- Forward contracts
- Futures contracts
- Others
Specific ways to manage market price risks

- Be a low cost producer
- Diversify your enterprises
- Have an off-farm job
- Use some form of market price protection
- Use seasonal price trends
- Monitor price opportunities
- Average market prices and spreads over time
Be a low cost producer

- Lowers the breakeven price and price objective
- Lowers potential financial loss
- Improves profitability
- Provides alternatives to use price protection
- Others
Output market prices that are not correlated over time help farmers avoid serious financial losses if multiple commodities experience extreme lows at the same time.
You and/or spouse have an off farm job to generate income that is not obligated.

Market skills for hire to neighboring customers
Use market price protection

- Forward contracts
- Futures contracts
- Insurance (Livestock Risk Protection)
- Others
Use seasonal price trends

Tennessee Steer Seasonal Price Index
Medium No. 1, 700-800 lbs., 2002-2011
## Evaluate value of gain

### Value of Gain Evaluation for Stockers or Backgrounding

<table>
<thead>
<tr>
<th># of Head</th>
<th>Market Weight</th>
<th>Market Price</th>
<th>Total Dollars</th>
<th>Total Pounds</th>
<th>Total Head</th>
<th>Dollars/Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Feeder Calf</td>
<td>450</td>
<td>$1.60</td>
<td>$144,000</td>
<td>90000</td>
<td>$720</td>
</tr>
<tr>
<td>194</td>
<td>Feeder Cattle</td>
<td>800</td>
<td>$1.40</td>
<td>$217,280</td>
<td>155200</td>
<td>$1,120</td>
</tr>
<tr>
<td>Difference</td>
<td>350</td>
<td>$ (0.20)</td>
<td>$73,280</td>
<td>65200</td>
<td>$400</td>
<td></td>
</tr>
</tbody>
</table>

**Value of Gain**

- **(Total $)**
  
  \[
  \text{Value of Gain} = \$217,280 - \$144,000 = \$73,280 \text{ Total $}
  \]

- **($/Head)**
  
  \[
  \text{Value of Gain/Head} = \frac{\$217,280 - \$144,000}{194} = \$378 \text{ /Hd.}
  \]

- **($/Pound)**
  
  \[
  \text{Value of Gain/Lb.} = \frac{\$217,280 - \$144,000}{65200} = \$1.12 \text{ /Lb.}
  \]
## Evaluate value of gain

### Value of Gain Evaluation for Stockers or Backgrounding

<table>
<thead>
<tr>
<th># of Head</th>
<th>Market</th>
<th>Weight</th>
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<td>Feeder Calf</td>
<td>450 Lbs./Hd.</td>
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<td>$144,000</td>
<td>90000</td>
<td>$720</td>
<td></td>
</tr>
<tr>
<td>194</td>
<td>Feeder Cattle</td>
<td>800 Lbs./Hd.</td>
<td>$1.60 $/Lb.</td>
<td>$248,320</td>
<td>155200</td>
<td>$1,280</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td>350 Lbs./Hd.</td>
<td>$ - $/Lb.</td>
<td>$104,320</td>
<td>65200</td>
<td>$560</td>
<td></td>
</tr>
</tbody>
</table>

- **Value of Gain** = $248,320 - $144,000 = $104,320 Total $
- **Value of Gain/Head** = $248,320 - $144,000 = $538 /Hd.
- **Value of Gain/Lb.** = $248,320 - $144,000 = $1.60 /Lb.
Monitor price opportunities daily

Tennessee 700-800 lbs Steers

$ Per Cwt.
May your boots still shine!