Introduction to Decision Making

2015 Nebraska Ranch Practicum
North Platte, Nebraska
June 10, 2015

Jay Parsons, Associate Professor
Department of Agricultural Economics
YOU ARE THE MANAGER

- Management – The process or art of making business decisions which have the effect of “maximizing” business goals.
Types of Decisions

1. Production
2. Marketing
   a) Selling Output/Products
   b) Buying Inputs
3. Financial Decisions
4. Human Resource Decisions
5. Policy Decisions
Management Tools

1. Economic Principles
2. Budgets & Record Keeping
3. Modeling
More Than Just Business

• These decisions should be consistent with
  – Other operator goals
  – Family goals
Business Planning Process

Like any good strategist, you need to think

1. About your way into business (entry)
2. How you’re going to grow your business (growth)
3. Your way out of business (exit)

Your goals and objectives need to align.
Identification of Objectives/Goals

1. Firm survival
2. Rapid growth (not worth)
3. Maximum profits
4. High liquidity
5. Leisure and comfort
Decision-Making Process

by Hammond, Keeney, & Raiffa
Decision Analysis Society
1999 Publication Award winner
Decision-Making Process

• Making Decisions is a Fundamental Life Skill
• You *can* Learn to Make Better Decisions
• Use the PrOACT Approach to Make Smart Choices
PrOACT

- Problem
- Objectives
- Alternatives
- Consequences
- Tradeoffs
The Eight Elements of Smart Choices

- **Problem**
- **Objectives**
- **Alternatives**
- **Consequences**
- **Tradeoffs**
- **Uncertainty**
- **Risk Tolerance**
- **Linked Decisions**
The Decision Dozen

- Problem
- Objectives
- Alternatives
- Consequences
- Tradeoffs
- Uncertainty
- Risk Tolerance
- Linked Decisions
- Avoid Psychological Traps
- Make the Decision
- Implement the Decision
- Monitor Results of the Decision
Problem Definition

• Framing the decision opportunity
• A good solution to a well defined problem is always better than an excellent solution to a poorly defined problem
• Work on the right decision problem
• Be creative in your problem definition
• Turn problems into opportunities
Problem

• Connect the trigger to the problem.
• Trigger: Bulls are really expensive.
• Perceived problem: Should I AI more of my cows this year?
• Ask: Why do I care?
• Real problem: What is the best way to manage my breeding program?
Decision Opportunity

• Breeding Program Management.

• Short Term:
  – What should I do this year?
    • Bulls are really expensive.

• Long Term:
  – Always looking for opportunities that increase the likelihood of reaching your breeding management/genetic goals.
Objectives

- Specifying your objectives
- Let your objectives be your guide
- A full set of objectives (including personal and financial) should form the basis for identifying and evaluating the alternatives open to you.
- Your objectives form your decision criteria
- Your objectives help you identify future decision opportunities and risks to consider.
Objectives

• Objectives help you determine what information to seek
• Objectives can help you explain your decision choice to others
• Objectives determine a decision’s importance and, consequently, how much time and effort it deserves
The Art of Identifying Objectives

• Step 1: Write down all the concerns you hope to address with your decision
• Wish List: What would make you really happy?
• Worst Outcome: What do you most want to avoid?
The Art of Identifying Objectives

• Step 2: Convert your concerns into succinct objectives
• Step 3: Separate the ends from the means to establish your fundamental objectives
  – Keep asking “Why?” (five times?) until you can’t go any further. Then, you have reached a fundamental objective.
The Art of Identifying Objectives

• Step 4: Clarify what you mean by each objective
• Step 5: Test your objectives to see if they capture your interests
  – Consider several alternatives that are consistent with objectives. Can you live with the results?
  – Can your objectives help you explain your decision to someone else?
Practical Advice

• Objectives are personal
• Objectives should not be limited by available information or ease of access to it
• Different objectives may be needed to suit different decisions
• Similar/related decisions should have similar “well thought out” and “stable” objectives
Practice

• Think of a decision that you are trying to make at the present time or will be making in the not too distant future.
  – Write it down in top section of the Decision Process Framework worksheet.

• Identify the primary objectives you are trying to achieve by making this decision and record them now.
Alternatives

Alternatives are possible courses of action including the possibility of doing nothing at all.
The Art of Identifying Alternatives

- Use your objectives and ask “How?”
- Don’t box yourself in by limiting choices
- Challenge constraints
- Set high expectations
- Think “creative” and “imaginative”
- Learn from experience
- Keep an open mind!
The Art of Identifying Alternatives

• Do your own thinking first
  – Objective is to get some of your more interesting alternatives out of the back of your mind
  – Write down as many of your “first thoughts” before they become a conglomeration of other people’s opinions
The Art of Identifying Alternatives

• Then, ask others for suggestions
  – Tell them as little as possible
  – Let them offer their thoughts and ideas before mentioning any of your own.

• Remember, your choice on what to do can only be as good as your best alternative – Make the list as complete as possible!
Practice

• For your decision:
  – Without talking to anybody write down at least two alternatives to address it.

• Then:
  – Ask at least one neighbor or one expert in the room for their opinion about the decision and come up with at least one more alternative to add to your list.
Consequences

• Be sure you understand the consequences of each alternative before you make a choice
• The main benefit of describing the consequences of each alternative is understanding.
Consequences

• Step 1: Mentally place yourself into the future.
• Step 2: Create a free-form description of the consequences for each alternative.
• Step 3: Eliminate obviously inferior alternatives
• Step 4: Build a consequences table
## Consequences

<table>
<thead>
<tr>
<th>Objectives</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Master the Art of Describing Consequences

• Try before you buy
• Make the most of available information/data
  – Use experts wisely
  – Don’t rely only on hard data
  – Be realistic about precision
  – Use common and appropriate scales
## Consequences

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Alternatives</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cost</td>
<td></td>
<td>32</td>
<td>25</td>
<td>28</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>2. Genetics</td>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3. Pregnancy %</td>
<td></td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Evaluating Alternatives

• Find and eliminate the dominated alternatives
  – An alternative is dominated by another alternative if it is not better at achieving any one objective and worse at achieving at least one objective.
## Consequences

<table>
<thead>
<tr>
<th>Objectives</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cost</td>
<td>32</td>
<td>25</td>
<td>28</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>2. Genetics</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3. Pregnancy %</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Tradeoffs

- Use even swaps to simplify complex decisions with lots of objectives
- Eliminate objectives by making them irrelevant to the decision choice
- Barter between objectives to create even swaps to obtain irrelevant objectives that can be eliminated
## Tradeoffs

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>1. Cost</td>
<td>25, 34</td>
</tr>
<tr>
<td>2. Genetics</td>
<td>2</td>
</tr>
<tr>
<td>3. Pregnancy %</td>
<td>2</td>
</tr>
</tbody>
</table>
## Tradeoffs

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>1. Cost</td>
<td>[34, 32, 30]</td>
</tr>
<tr>
<td>2. Genetics</td>
<td>[2, 1, 3]</td>
</tr>
</tbody>
</table>

Integrated Production Systems
## Consequences

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Alternatives</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>1. Cost</td>
<td>32</td>
<td>25</td>
<td>28</td>
<td>30</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>2. Genetics</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3. Pregnancy %</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
PrOACT

• Problem (or Decision Opportunity)
• Objectives
• Alternatives
• Consequences
• Tradeoffs
The Eight Elements of Smart Choices

- **Problem**
- **Objectives**
- **Alternatives**
- **Consequences**
- **Tradeoffs**
- Uncertainty
- Risk Tolerance
- Linked Decisions
Uncertainty

• Distinguish Smart Choices from Good Consequences
  – Smart choice, bad consequence
  – Poor choice, good consequence
Uncertainty

• Tackle uncertainty head on
  – Back to understanding consequences

• Identify uncertainties
  – Identify possible outcomes
  – Assign probabilities

• Clarify possible consequences
Risk

Risk is the effect of uncertainty on your objectives.

- Risk has both positive and negative effects.
- Risk management is objective focused.
Risk Tolerance

• Understand your willingness to take risks
  – *Risk Preference Calculator*
    • Available from [RiskNavigatorSRM.com](http://RiskNavigatorSRM.com)

• Incorporate your risk tolerance into your decisions

• *Desirability scoring* can quantify risk tolerance and simplify tough decisions
Risk Tolerance Pitfalls

• Don’t over focus on the negative
  – Consider full range of consequences
  – Don’t fudge on the probabilities

• Don’t ignore significant uncertainty

• Avoid foolish optimism

• Don’t avoid risky decisions just because they are complex
Risk Management

“Risk management is fundamentally about increasing the probability of achieving your objectives.”

Tim Leech
Risk Oversight, Inc.

• Managing risk opens up new opportunities and creates more alternatives.
Linked Decisions

- Linked decisions are complex
- The link is created by the decide/learn cycle created by uncertainties
- You can make smart linked decisions by planning ahead
Analyzing Linked Decisions

- Understand the basic decision problem
- Identify ways to reduce critical uncertainties
- Identify future decisions linked to the basic decision
- Understand relationships between decisions
- Decide what to do in the basic decision
- Tackle later decisions as a new problem
Advice for Linked Decisions

• Keep your options open with flexible plans

• Maintain your perspective
  – Linked decisions are tough
  – Your comfort level may not be high
  – Smart linked decisions can create a much higher reward than a bunch of perfect simple decisions
The Decision Dozen

- Problem
- Objectives
- Alternatives
- Consequences
- Tradeoffs
- Uncertainty
- Risk Tolerance
- Linked Decisions
- Avoid Psychological Traps
- Make the Decision
- Implement the Decision
- Monitor Results of the Decision
Psychological Traps

• Anchoring
  – Over relying on first thoughts

• How to avoid
  – View problem from different perspectives
  – Do your own thinking first
  – Tell others as little as possible and keep an open mind when they offer suggestions when you ask advice
Psychological Traps

• **The status quo trap**
  – Strong bias toward perpetuating current situation

• How to avoid
  – Always remind yourself of objectives
  – Pretend status quo is new alternative
  – Force yourself to pick between two better alternatives if they exist
Psychological Traps

• **The sunk cost trap**
  – Protecting earlier choices

• **How to avoid**
  – Seek out and listen to people not involved in earlier choices
  – Admit smart choices can have bad consequences
  – “When you find yourself in a hole, the best thing you can do is stop digging.” Warren Buffett
Psychological Traps

• The confirming-evidence trap
  – See what you want to see

• How to avoid
  – Get someone to play devil’s advocate
  – Be honest about your motives
  – Don’t asking leading questions when seeking advice
Psychological Traps

- **The framing trap**
  - Posing the wrong question

- **How to avoid**
  - Don’t automatically accept the initial frame
    - Regret theory
  - Remind yourself of your fundamental objectives
Psychological Traps

• **The overconfidence trap**
  – Being too sure of yourself

• **How to avoid**
  – Consider the extremes
  – Actively challenge your own figures
  – Do your homework/challenge the experts
Psychological Traps

- **The recallability trap**
  - Focusing on dramatic events
- **How to avoid**
  - Where possible get data
  - Take apart the event piece by piece
  - Challenge your estimates
Psychological Traps

• The outguessing randomness trap
  – Seeing patterns where none exist

• How to avoid
  – Don’t try to outguess pure randomness
  – If you think you see a pattern, check out your theory in a setting where consequences are not very significant
The Decision Dozen

- Problem
- Objectives
- Alternatives
- Consequences
- Tradeoffs
- Uncertainty
- Risk Tolerance
- Linked Decisions

Avoid Psychological Traps
- Make the Decision
- Implement the Decision
- Monitor Results of the Decision
Commitment to Action

• Make the decision
  – Choose an alternative

• Mandate and Commitment to Action
  – Implement the decision
  – Monitor the results
    • Compare actual result with projections
    • For example, written records vs. budgets
Final Thoughts on Decision Making

1. Get Started
2. Concentrate on what’s important
3. Develop a plan of attack
4. Chip away at complexity
5. Get unstuck
6. Know when to quit analyzing
7. Use your advisors wisely
Final Thoughts on Decision Making

8. Establish and follow basic decision making principles
9. Constantly refine and tune up decision making style
10. Take charge of your decision making
by Parsons and Keeney 😊
Questions?

Jay Parsons
402-472-1911
jparsons4@unl.edu