Extension Priorities Guide Ranch Stewardship Mapping Curriculum

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Introduction

• Sustainability of beef cattle production is a prominent concern among producers, scientists and the general public.

• Modern mapping tools and data can help producers identify and document sustainability improvements.
Ranch Stewardship Mapping Objectives

- Help cow/calf producers improve sustainability
- Understand Extension Priorities (Stewardship)
  - Program Prioritization Survey
    - Livestock Management
    - Natural Resources
- Determine ranch mapping curriculum content
- Use demographics of beef cattle owners to guide initial delivery
Research Questions – Content

• How do beef cattle owners prioritize Extension education?
  – Natural Resources
    • rangeland/grassland management
    • woodlands/tree planting
    • water quality and quantity
    • invasive species
    • soil fertility and erosion
    • wildlife management
  – Livestock Production
    • animal wellbeing
    • livestock environmental regulation

• How do these priorities differ from those of non-beef cattle owners?
Research Questions – Initial Delivery

• How do priorities of beef cattle owners differ?

• Based on:
  – Gender
  – Generation
  – Region
Natural Resources Priority Score Frequencies
Beef Cattle Owners

<table>
<thead>
<tr>
<th>Education Topics</th>
<th>Priority Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>grass</td>
<td>35% 23% 17% 14% 7% 5%</td>
</tr>
<tr>
<td>soil</td>
<td>20% 23% 21% 19% 12% 5%</td>
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<tr>
<td>water</td>
<td>23% 13% 17% 16% 17% 15%</td>
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<tr>
<td>invasive</td>
<td>11% 19% 19% 21% 20% 10%</td>
</tr>
<tr>
<td>trees</td>
<td>7% 17% 19% 17% 25% 16%</td>
</tr>
<tr>
<td>wildlife</td>
<td>4% 6% 7% 14% 19% 50%</td>
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</table>
### Natural Resources Priority Score Frequencies

**Beef Cattle Owners**

<table>
<thead>
<tr>
<th>Education Topics</th>
<th>Priority Scores</th>
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<tbody>
<tr>
<td>grass</td>
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<td>soil</td>
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<td>water</td>
<td>23% 13% 17% 16% 17% 15%</td>
</tr>
<tr>
<td>invasive</td>
<td>11% 19% 19% 21% 20% 10%</td>
</tr>
<tr>
<td>trees</td>
<td>7% 17% 19% 17% 25% 16%</td>
</tr>
<tr>
<td>wildlife</td>
<td>4% 6% 7% 14% 19% 50%</td>
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</table>

**Non-beef Cattle Owners**

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<tr>
<td>soil</td>
<td>17% 18% 19% 18% 18% 10%</td>
</tr>
<tr>
<td>trees</td>
<td>16% 21% 17% 19% 18% 7%</td>
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<tr>
<td>grass</td>
<td>19% 18% 16% 15% 15% 16%</td>
</tr>
<tr>
<td>invasive</td>
<td>8% 17% 19% 21% 19% 16%</td>
</tr>
<tr>
<td>wildlife</td>
<td>7% 10% 12% 14% 18% 38%</td>
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</table>
Natural Resources Priority Score Medians

- Beef Cattle Owners

- Non-beef Cattle Owners
Owner vs Non-owner Priority Comparison
Natural Resources Program

Significantly More Important
**p<.001
Non-parametric Mean Rank Comparison

<table>
<thead>
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<th>Median Priority Score</th>
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<tr>
<td>wildlife</td>
<td><img src="chart6.png" alt="Bar chart" /></td>
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Owner vs Non-owner Priority Comparison
Livestock Production Program

Significantly More Important
**p<.001, *p<.01
Non-parametric Mean Rank Comparison
Summary of Results - Content

• Beef cattle owner priorities
  Animal wellbeing, Grassland, Soil, Water,

• Topics more important to non-owners than to owners
  Animal wellbeing, Trees, Water, Wildlife, Environmental policy,
Summary of Results – Initial Delivery

• Women beef cattle owners consider education needs related to the following to be a higher priority than do male owners.
  – Animal well being
  – Water quality and quantity
  – Woodlands/tree planting
  – Environmental regulation

• No useful information about generations or regions
Current and Future Work

• Develop/acquire and upload
  – Relevant data layers
  – Geospatial PDF maps
  – Ranch Stewardship Map Gallery
  – User guides

• Plan and deliver initial training
  – Women in Agriculture workshops
Ranch Stewardship Mapping

Resources for Ranch Stewardship Mapping to support sustainable cow-calf production in dry prairie rangeland of the US Great Plains

Tags
Geospatial PDF Great Plains Kansas Rangeland USGS Topo Download
Estimating Grazeable Forage

- Production
- Steep Slopes
- Water Bodies
- Dense Trees
Links to Download USGS GeoPDF Maps and Range Production KML Files
Dense Tree Area:
9.72 ac
LIVESTOCK SUSTAINABILITY CRITERIA/VALIDATION
Managing Tradeoffs – Grassland vs Trees

Animal Wellbeing, Soil, and Water
Pasture Feeding - *Soil, Water, Wellbeing*

Feed usually on higher dry ground
Feed in these sheltered areas rarely
Managing Tradeoffs – Grassland vs Trees

*Eastern Redcedar- Windbreaks vs Prairie Invader*
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QUESTIONS?
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