



Grazing Management Plan Adoption in U.S. Cow-Calf Operations

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Introduction

- Grazing lands in the U.S.
 - Rangelands: 405 million acres, 21% of surface area
 - Pasturelands: 121.1 million acres, 6% of surface area
- Challenges faced by grassland ecosystems from improper grazing practices
- Changing consumer attitudes towards environmental issues in beef production
- Need for Grazing Management Plan adoption to address challenges and meet sustainability goals

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Beef Cattle Sustainability



- U.S. Roundtable for Sustainable Beef
- High-Priority Indicators Goals
 - Air & Greenhouse gas emissions,
 - Land resources, water resources, etc.
- Sector Targets
 - Cow-Calf (by 2050):
 - 385 million acres covered by GMP
 - Benchmark water use and quality

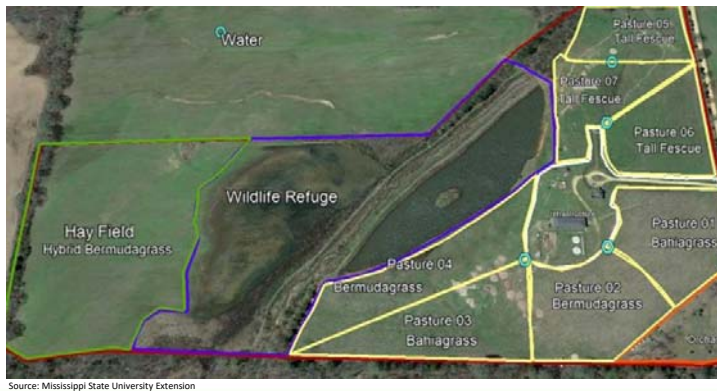
Grazing Management Plan Overview

1. Identify Problems & Opportunities
 - Soils, forage suitability, ecological sites
 - Maintain and/or enhance resource conditions
2. Determine Objectives – what is the purpose
 - Improve forage yield, quality, etc.
 - Maintain/improve wildlife habit, soil health, water quality

Grazing Management Plan Overview

3. Inventory Resource

- Describe enterprises, soils, vegetative species, etc.
- Determine acres, animal and acres inventory, etc.



Grazing Management Plan Overview

4. Analyze Resource Data

- Benchmark conditions vs. desired future conditions

5. Formulate & Evaluate Alternatives

- No action vs action alternative(s)
 - Ex. Structural conservation practices: fences, watering facilities vs. non-structural: brush management, prescribed burning

Grazing Management Plan Overview

6. Implement, Monitor, and Adjust

- Remember:
 - This plan is dynamic
 - Be flexible
 - Review short- and long-term goals
 - Understand limitations and opportunities
 - Lots of resources available to help with developing GMP



Source: University of Nebraska

Research Objectives

1. Establish a baseline for GMP adoption and analyze determinants of adoption
2. Examine factors shaping priority objectives in GMP



Data Collection

- Electronic survey conducted among 2,760 cattle producers
 - Survey period: November 2020 to January 2021
 - Participants: National Cattlemen’s Beef Association and state affiliates
 - Cow-calf producers w/wo stocker operations
- Components
 - Farm operator and operation demographics
 - Grazing management practices and presence of GMPs
 - Succession or transition plans
 - Ranking of objectives for GMP development



Empirical Model

- Dependent variable
 1. Adoption Model I & II
 - A GMP (Yes/No)
 - Cow-calf or stocker (I)
 - Cow-calf & stocker (II)
 2. Objective Model I & II
 - Environmental benefit (Yes/No) (I)
 - Cow-calf or stocker
 - Production/profitability (Yes/No) (II)
 - Cow-calf or stocker
- Independent variables
 - Age
 - Decision maker
 - Region
 - Type of operation
 - The % of privately-owned land
 - Existence of succession plan
 - Size of the herd
 - Grazing land area managed

Results – Summary Statistics

- Majority have a GMP – 83% (43% written GMP)
- Primary GMP focus:
 - ENV benefits – 34%; Production/profitability – 33%
- Average age: 57
- Land ownership: mostly private – 70%
- Succession plan: in place – 48%; in process – 20%
- Operation without a stocker – 46%
- Operation location: South – 51%; West – 31%; Midwest – 19%

Results – Adoption Model I

- Factors influencing GMP adoption in cow-calf or stocker operations
- (-) proportion of privately owned land
- (+) existence of succession plans
- (+) stocker operations
- (+) larger grazing lands (>10,000 acres)





Results – Adoption Model II

- GMP adoption differences between cow-calf or stocker operations and cow-calf & stocker operations:
 - Generally consistent with Adoption Model I
 - Lower adoption in the West compared to the Midwest



Results – Objective Model I (Env)

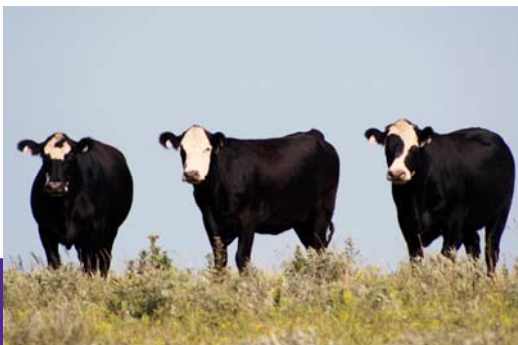
- Factors influencing environmental objective prioritization within GMPs:
 - (+) Proportion of privately owned grazing land
 - (+) Existence of succession plans
 - (+) Smaller-herd operations: 20-49 head, 50-199
 - (-) Operations with smaller grazing land acres (1-499 acres)

Results – Objective Model II (Prod/Profit)

- Factors influencing production/profitability objective prioritization within GMPs:
 - (-)Younger producers
 - (-)Proportion of privately owned grazing
 - (-)Smaller-herd operations: 20-49 head, 50-199 head
 - (+)Operations with smaller grazing land acres (1-499 acres)

Conclusion

- Summary of key findings
 - Adoption of GMPs
 - Land tenure
 - Succession plan
 - Type of operation
 - Scale of grazing land
 - Motivations behind GMPs
 - Two primary objectives: Env & Prod/Profit
 - Age, land tenure, succession plan
 - Herd size
 - Scale of grazing land



Source: Beef Cattle Institute

Policy Implications

- Guiding policy and extension efforts
 - Region specific policies
 - Addressing tenure concerns
 - Sustainable practices, land ownership
 - Program design: Longer-term contracts
 - Promoting succession plan
 - Sustainable ranching, workshops on succession plan
 - Emphasize both business and environmental merits



Limitations

- Data limitations
 - Demographics: education, social cultural elements
 - External factors: access to technology/market, land value, cost of GMP implementation
- Static time frame
 - Cross-sectional: not causal
 - Policies and agricultural practices evolving
- Reporting bias

Future Research

- Longitudinal studies
 - Land tenure dynamics
 - Evolving trends and the effectiveness of interventions
- Expand scope
 - Larger and more random sampling
 - Relevant important factors
 - Financial incentives & economic analysis

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Thank You

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