

**Grassland Conservation
Reserve Program in the Northern U.S. Great Plains: A Study of Rancher
Preferences and Participation Barriers**

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Introduction: Northern Plains Grasslands: A Critical Ecosystem

- One of the last intact grassland regions in the US (Lark 2020).
- 70% of the land in this region remains intact
- Mostly (90%) **privately owned** (NRCS 2021)
- Much of the region is managed as **rangeland**

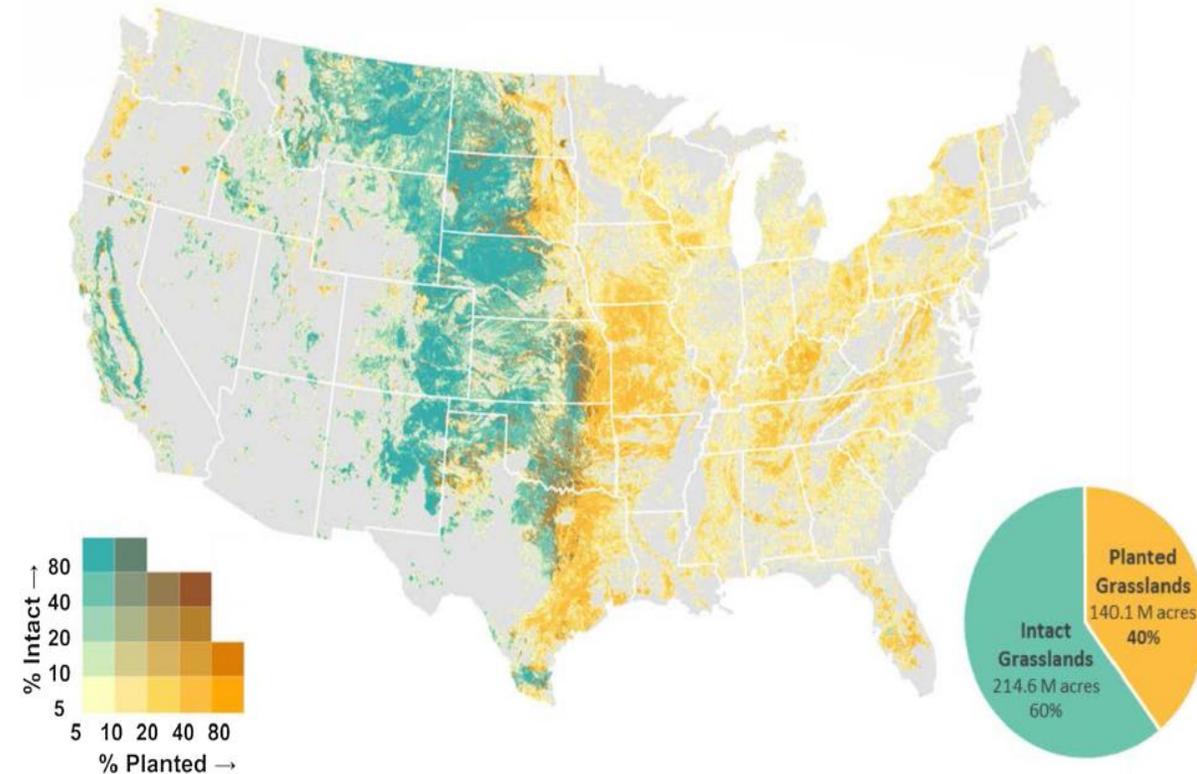


Figure 1. Intact and Improved Grasslands
Source: Lark (2020)

Primary Threats to Grassland

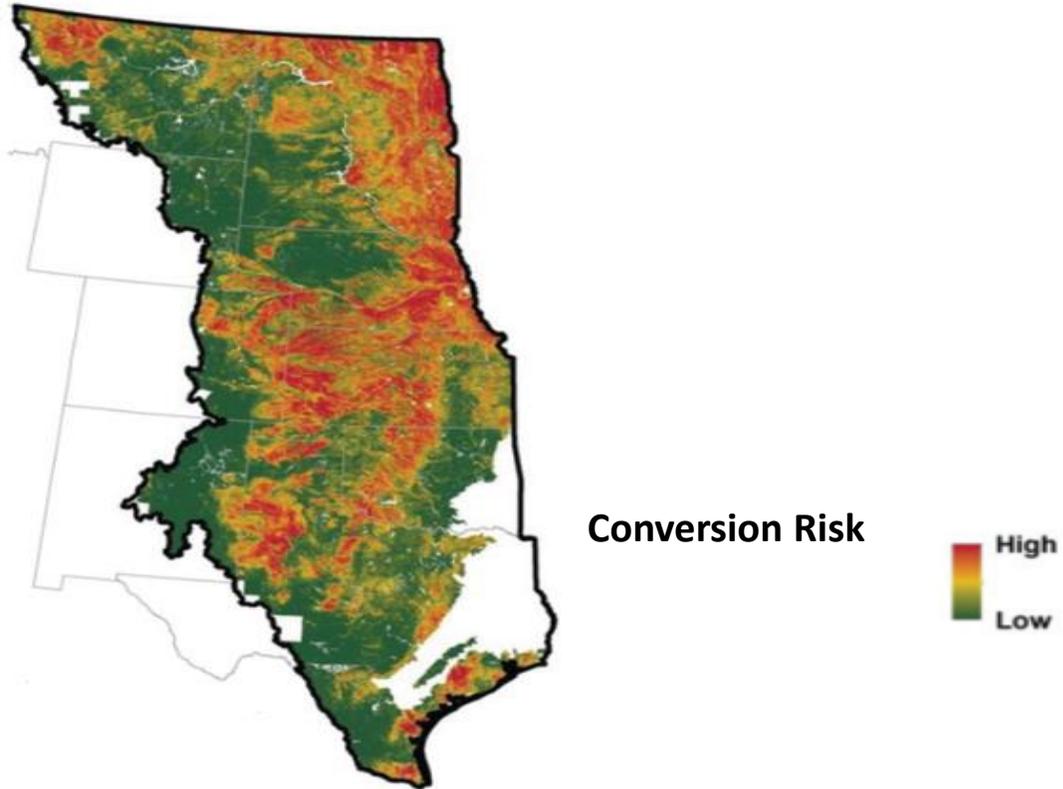


Figure 2. Grassland to **Cropland Conversion** Risk
Source: (NRCS 2021)

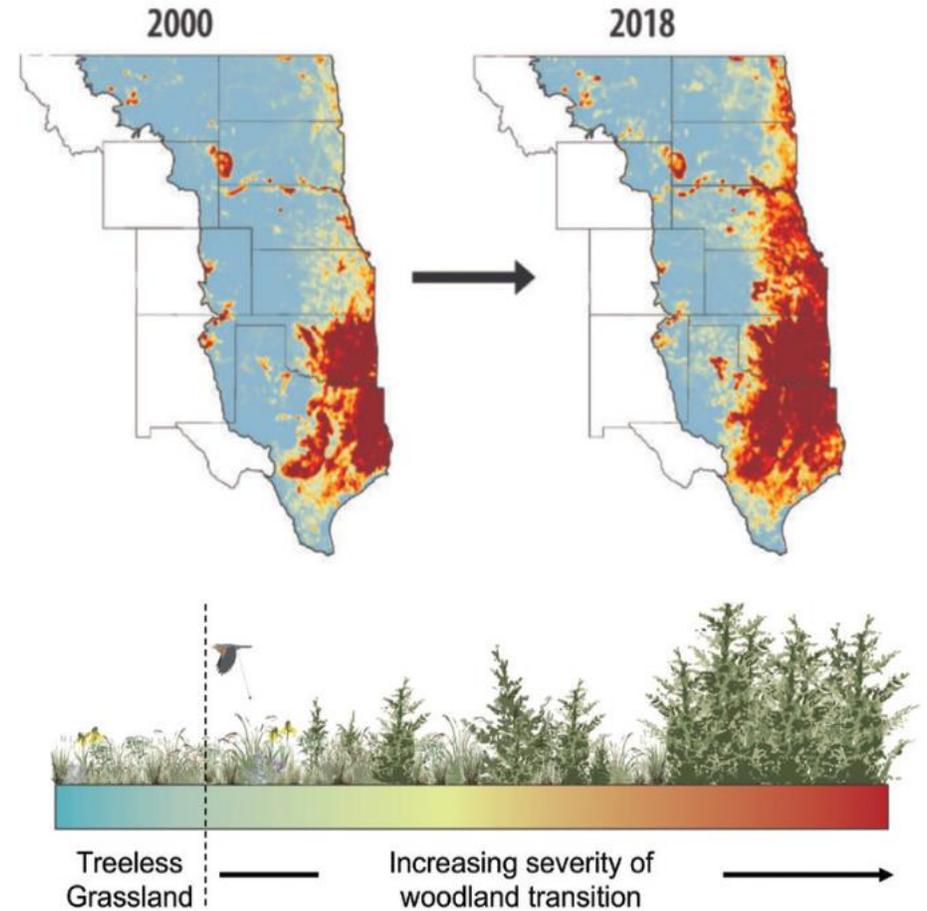


Figure 3. **Woody Encroachment** into Grasslands
Source: (NRCS 2021)

Grassland CRP

Introduced by the United States Department of Agriculture (USDA) Farm Service Agency (FSA).

- Working Lands Program
- Designed to attract ranchers
- Enrollment began in 2017
- Offer selection score-based

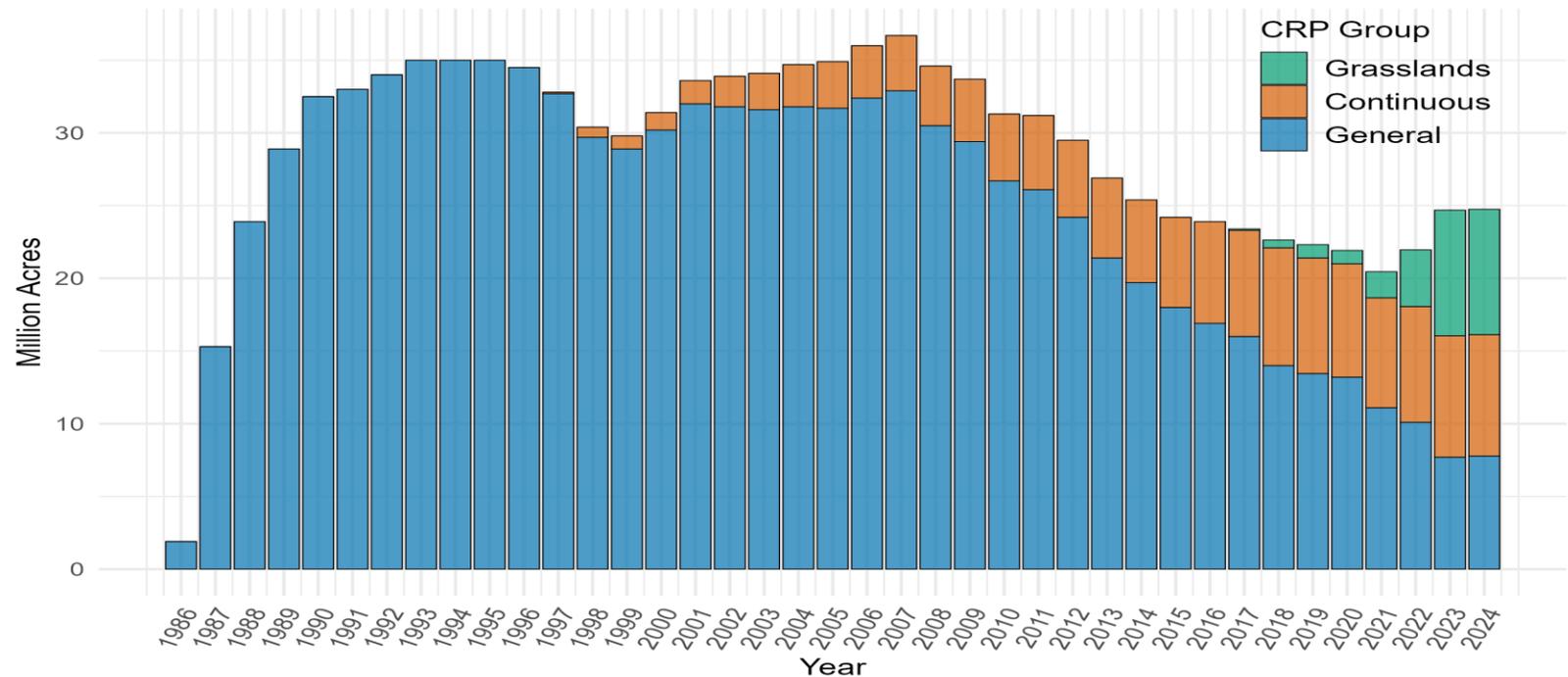


Figure 4. CRP Enrollment at the End of Each Fiscal Year (Acres)

Data Source: (USDA 2024)

Grassland CRP

Eligibility Criteria

- Land must be predominantly used for grazing
- Must have existing grassland cover

Expectations from Participants

- Maintain vegetative cover
- Follow a site-specific grazing plan
- Avoid cultivation or development

Questions we answer with our study: For Ranchers, what are

- **Barriers** to participation in Grasslands CRP
- **Preferences** for existing and new Grasslands CRP contract features

We implemented a rancher **survey** for this research

What is New about our project?

- Grassland CRP is a new program and focused on ranchers
 - So existing evidence base is thin
- Study aims to elicit preferences for new practices
 - Winter grazing
- First of a kind study quantifying rancher social networks and linking it to economic decisions (**analysis ongoing**)

Survey Design

Survey in Montana, South Dakota & North Dakota

- Includes
 - Discrete Choice Experiment (DCE)
 - Background: Practices/programs, attitudes, and demographics

Survey Administration

- Period: Oct 2024 – Mar 2025
- Mode: Online (Qualtrics) + Mail

1. Are you 18 years of age or older?
 - Yes
 - No → End the survey; please return the survey in the stamped self-addressed envelope.
2. Did you work on a ranching operation in 2023?
 - Yes, please continue to the next section.
 - No → End the survey; please return the survey in the stamped self-addressed envelope.



Figure 5. Survey Cover Page

Sampling Frame

- Respondent contacts provided by FSA: 153,530 ranchers
- GCRP participants: Included all (n=2,007)
- Non-GCRP participants: Weighted by beef cow inventory census 2024 (n=6711)
- Total Sampled: 8,718
- Response: **476** (5.45%)

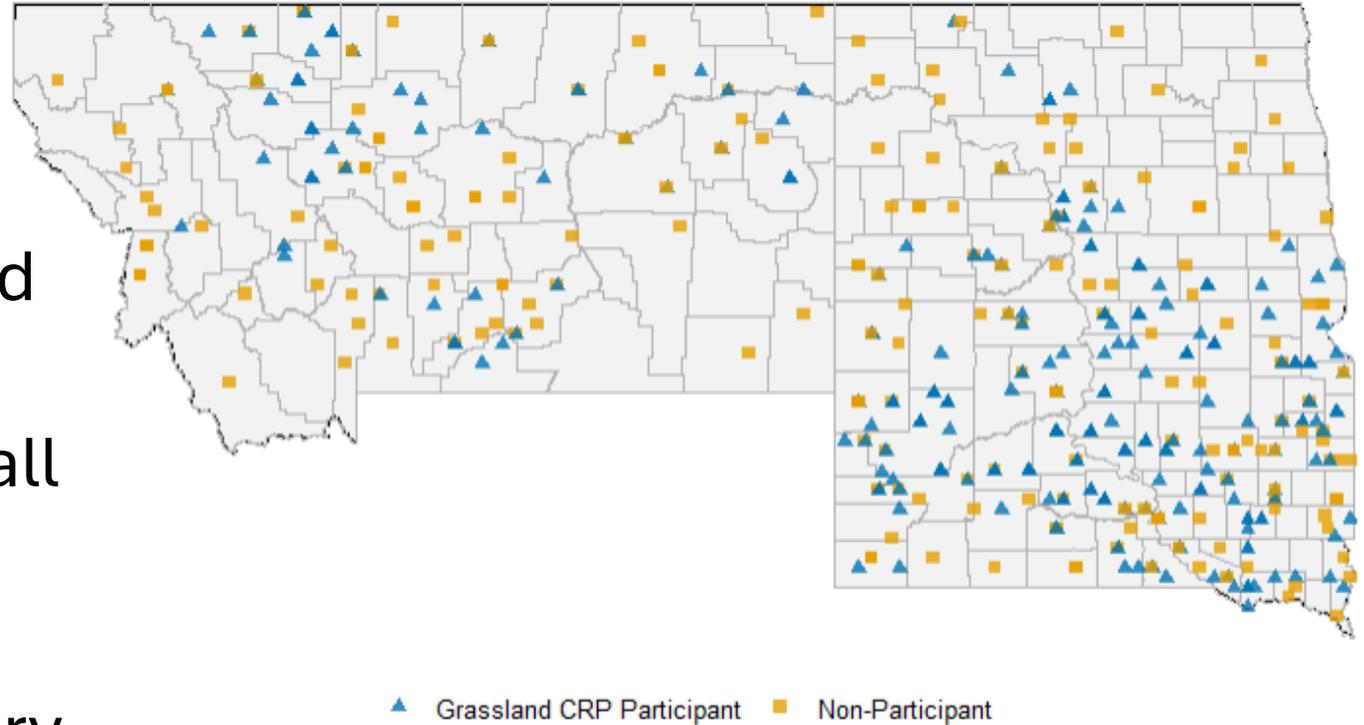


Figure 6. Study area showing sampled GCRP and non-GCRP participants in the dataset

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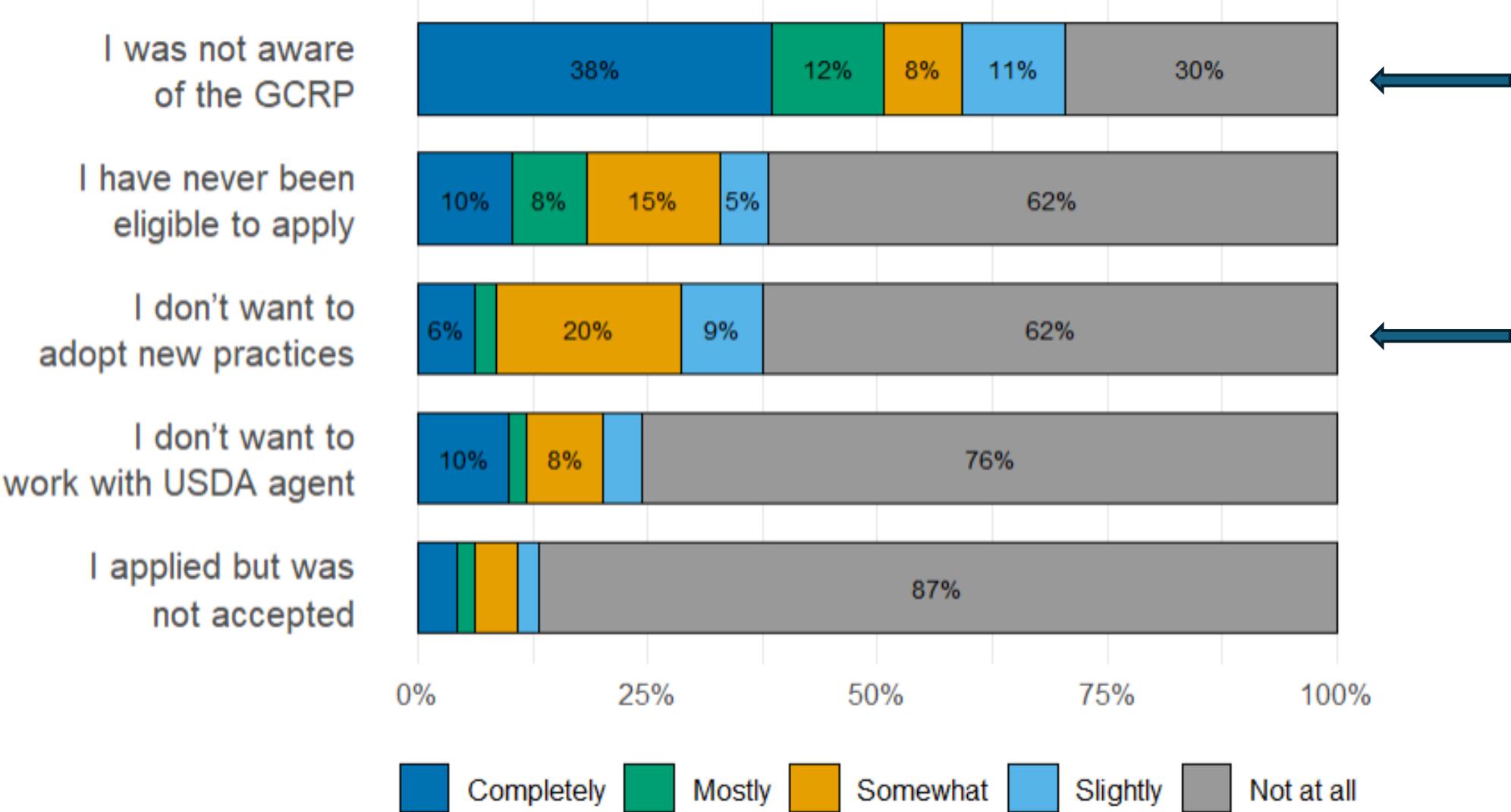
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We implement a rancher **survey**

Findings: Barriers to GCRP Participation (N = 213)

Focusing on ranchers who are currently Not Participating



Grassland CRP

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Discrete Choice Experiment (DCE)

Table 1. Attributes and Levels Used in the DCE Compared to Actual Grassland CRP Policy

Attribute	Levels in Study	Grassland CRP
Rotational Grazing (RG)	Required; Not required	Not Required
Winter Grazing (WG)	Allowed; Not allowed	Allowed
Contract Flexibility	Yes; No	Must follow approved conservation plan
Cost-share (%)	0; 30; 60	50
Contract length (years)	10, 15	10,15
Annual Payment (\$/acre)	10, 20, 30, 40	Min \$13; Mean \$21

- DCE included actual and hypothetical features to reflect current preferences and those for new contract features

- **Attributes and Levels** selected based on:

- Interviews with ranchers (Pape et al., 2024)
- Expert opinion from the FSA
- Review of existing literature

Discrete Choice Experiment (DCE) Instructions

The preamble: outlines hypothetical program's requirements

Description of the attributes

Cheap talk Script

An example of a choice set

Suppose you can sign up for a government conservation program contract for your pasture or rangeland on which you can continue to graze, hay, mow, and harvest. During the contract duration, you must:

- Maintain ground cover
- Not develop or grow crops on the enrolled land
- Keep the land free of noxious species
- Develop a conservation plan implementing specific livestock grazing practices

These actions can improve soil health and protect grasslands while keeping your land in livestock production. You would receive an annual payment (\$/acre) for your enrolled land as part of the contract. You may also receive a one-time cost-share payment to cover some percentage of costs for infrastructure development (if necessary for practice adoption).

The practices and contract features for this government conservation program are as follows:

Practices	Rotational grazing:	Dividing your pasture into smaller paddocks, letting livestock forage on a paddock for some period before moving to another.
	Winter grazing:	Extending the grazing season by allowing livestock to graze on pasture in late fall and early winter and stockpiling extra forage for winter.
Contract features	Cost-share percentage:	The agency offers a one-time payment to cover a percentage of infrastructure costs necessary for practice adoption.
	Contract length:	Duration of the contract.
	Contract flexibility:	You can adjust the conservation plan every 5 years, which may result in changes to your annual payment.
	Annual payment (\$/acre):	Annual payments for the enrolled land until the end of the contract.

For the next six questions, please choose between the **two conservation contract options**, or select **neither**, based on the contract features. As you make your choice, think about the actions you would need to take under the contract, the costs you would incur and the benefits that would result from your actions. Please read carefully and mark your choice. There is no right or wrong answer.

12. Which of the options would you choose?

		Rotational grazing	Winter grazing	Cost-share percentage	Contract length	Contract flexibility	Annual payment
<input type="radio"/>	Contract A	Not Required	Allowed	60%	10 years	No	\$40/acre
<input type="radio"/>	Contract B	Required	Not Allowed	0%	15 years	Yes	\$30/acre
<input type="radio"/>	Neither	-	-	-	-	-	-

Figure 8. Explanation of Hypothetical Contract, Attribute Description, Cheap Talk, and an Example Choice Question

Results: Rancher's Willingness to Accept (WTA) compensation to participate

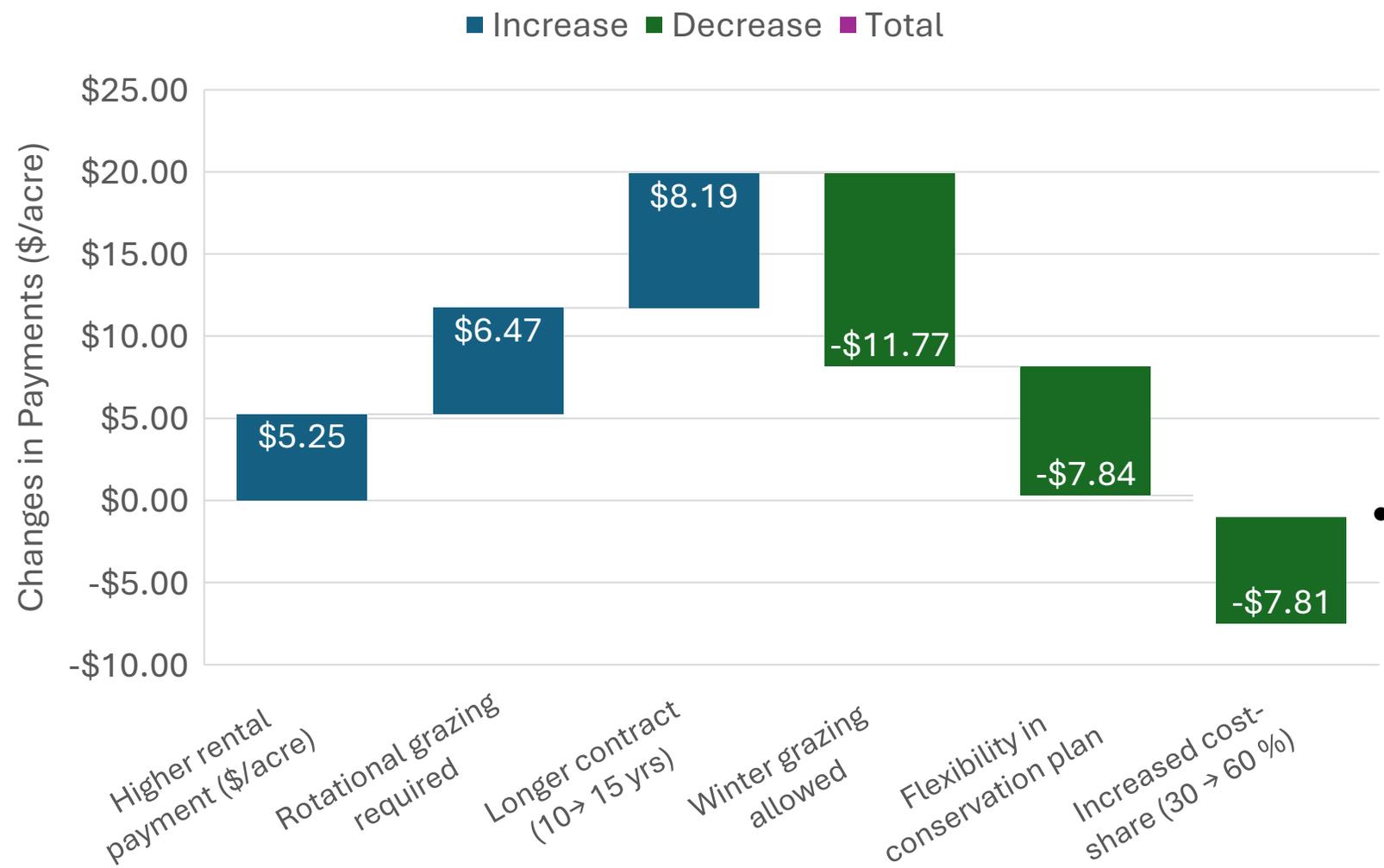


Figure 8. WTA values measuring positive and negative preference for contract features

- **Ranchers don't prefer and hence require payments:** (negative preference)
 - If they are to choose a contract rather than opt out.
 - For RG and longer contracts

- **Ranchers prefer and hence would pay for:** (positive preference)
 - Winter grazing option
 - Flexibility to modify conservation plan
 - Higher cost-share support

Model Estimates

Table 2. WTA Estimates Across Groups based on Random Parameter Logit Model

Attributes	Enrollment Status		State		
	GCRP	Non-GCRP	Montana	North Dakota	South Dakota
Rotational Grazing	2.87*	15.08***	7.15**	0.74	7.41***
Winter Grazing	-9.56***	-17.18***	-14.16***	-9.03**	-11.62***
Contract Length	5.17***	15.04***	8.08***	13.34***	7.16***
Cost-Share	-10.64***	-2.10	-7.44***	-3.88	-9.80***
Flexibility	-6.73***	-10.71***	-8.24***	-7.85**	-7.60***

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Across Participation Status:

- For all attributes **significant differences** between participants and non-participants
- Two groups have different preferences for the programs
 - Signs are the same, but magnitudes differ significantly

Across States:

- Montana and South Dakota seem the **most similar to each** other across attributes
- RG and Cost share are not significant in ND (need more data in ND)

Conclusion

Key Findings

- Information main participation barrier
- Ranchers value Winter grazing but resist rotational grazing
- Flexibility in conservation plans can be a way to get more people interested

Policy Recommendations

- Information **outreach and engagement** essential for program success
- **Rotational grazing** key for grasslands conservation and tools are needed to popularize this practice among ranchers as ranchers have negative preference for this practice

Social Network Data Collection

Section 3: Social Networks

INSTRUCTIONS
The next questions are about the people you interact with regarding your ranch. This could be friends, family, other ranchers, researchers, extension officials, NGOs or private agents.

Person 1

19. What is this person's primary occupation?

- Rancher
- University Extension personnel /researcher
- USDA personnel
- Financial institution employee
- Other professional (e.g., NGO, private agent)

20. How many years and months have you known this person?

Years and

Months

21. How frequently do you interact with this person, face-to-face and/or electronically?

- Daily
- 2-3 times per week
- Weekly
- 2-3 times per month
- Monthly or less

22. On which of the following topics do you receive information from this person? *Select all that apply.*

- Rotational grazing
- Winter grazing
- Maintaining grass cover
- Ranch management
- Conservation programs
- Unrelated to ranching

23. How much do you trust the information you receive from this person?

- Completely
- A lot
- Somewhat
- A little
- Not at all

24. Which of the following practices does this person implement on their ranch? *Select all that apply.*

- Rotational grazing
- Winter grazing
- Maintains grass cover
- None of these
- I don't know
- N/A – this person is not a rancher

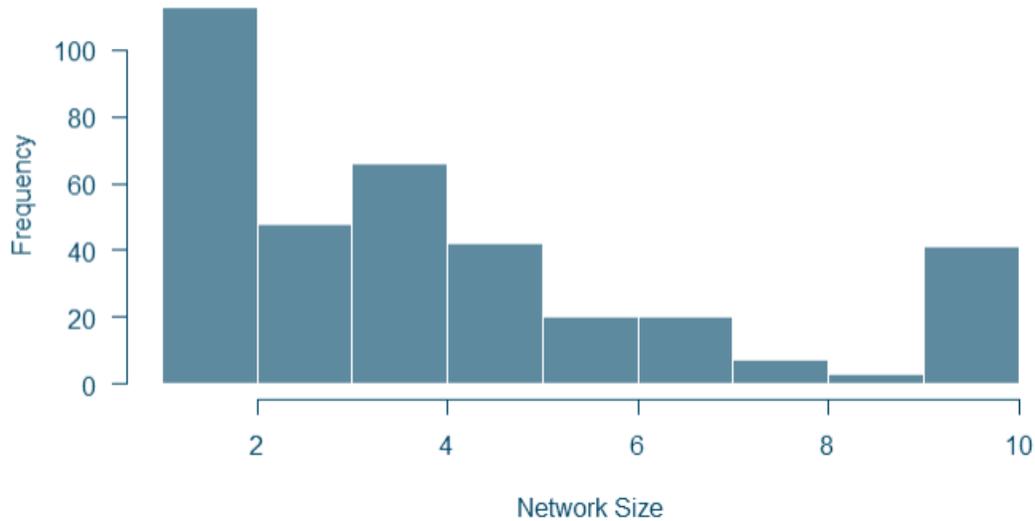
33. Please mark below if a pair of people you have listed know each other. So if Person 1 knows Person 10, select the last box in the first row of the table. If you are not sure that they know each other, please don't select.

	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8	Person 9	Person 10
Person 1		<input type="radio"/>								
Person 2			<input type="radio"/>							
Person 3				<input type="radio"/>						
Person 4					<input type="radio"/>					
Person 5						<input type="radio"/>				
Person 6							<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person 7								<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Person 8									<input type="radio"/>	<input type="radio"/>
Person 9										<input type="radio"/>
Person 10										

Information collected on 10 contacts by asking following three types of questions

- Name Generator
- Name Interpreter
- Name Inter-relator

Social Network Analysis: Preliminary Results



Information Type	Count (n)	n (%)
Rotational Grazing	601	39.03%
Winter Grazing	437	28.38%
Maintaining Grass Cover	579	37.6%
Ranch Management	978	63.51%
Conservation Program	530	34.42%
Unrelated to Ranching	578	37.53%

Occupation	Count	Percent (%)
Ranchers	887	61.5%
Other Professional (e.g., NGO, Private Agent)	249	17.3%
USDA Personnel	189	13.1%
Financial Institution Employee	66	4.6%
University Extension Personnel or Researcher	52	3.6%

Trust Level	Count (n)	n (%)
Completely	554	38.23%
A Lot	647	44.65%
Somewhat	204	14.08%
A Little	39	2.69%
Not at All	5	0.35%

Thank you!

**Questions, suggestions, or
feedback**

Very welcome

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