

PRODUCER ADOPTION OF CLIMATE-SMART AGRICULTURE PRACTICES ON GRAZING LANDS IN THE UNITED STATES

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and Environmental Sciences*

PRODUCERS FACE NEW CHALLENGES DEFINING THEIR ROLE IN GLOBAL SUSTAINABILITY

- Public scrutiny → animal agriculture cited as major contributor to GHG emissions
- Ecosystem benefits associated with grazing often overlooked in GHG reduction and carbon sequestration incentive programs
- Limited availability of technologies to measure and monitor the impact of different land management practices
- Limited support/guidance for implementation of alternative practices
- No market for animals with inset carbon benefits





**EVERY CHALLENGE
IS AN OPPORTUNITY
TO GROW**





U.S. DEPARTMENT OF AGRICULTURE

PARTNERSHIPS FOR CLIMATE-SMART COMMODITIES

BY THE NUMBERS



The U.S. Department of Agriculture is investing over **\$3.1 billion** in **141 selected** projects under the Partnerships for Climate-Smart Commodities.

PROJECTS BY COMMODITY



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usda.gov/climate-solutions/climate-smart-commodities



U.S. DEPARTMENT OF AGRICULTURE

PARTNERSHIPS FOR
CLIMATE-SMART
COMMODITIES
BY THE NUMBERS



60,000

farms reached, encompassing

25M

acres of working land
engaged in climate-smart
production practices.



Hundreds of expanded markets
and revenue streams for producers and
commodities across agriculture ranging
from **traditional corn** to **specialty crops**.



More than **60 million metric tons** of carbon dioxide equivalent sequestered
over the lives of the projects. This is equivalent to removing more than
12 million gasoline-powered passenger vehicles from the road for one year.



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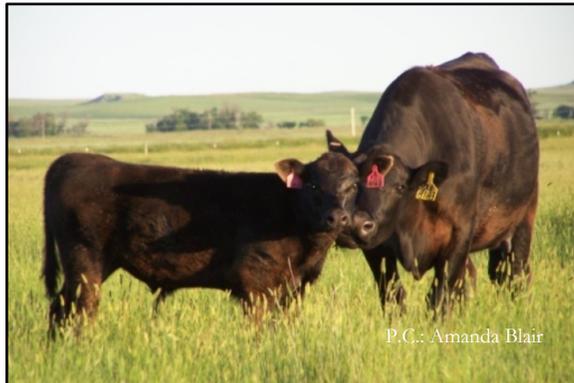
usda.gov/climate-solutions/climate-smart-commodities

THE GRASS IS GREENER ON THE OTHER SIDE: DEVELOPING CLIMATE-SMART BEEF AND BISON COMMODITIES

- Led by South Dakota State University + 10 partner organizations
- **Long-term Goal:** Create market opportunities for beef and bison producers that utilize climate-smart grazing and land-management practices
 - Guide producers on selection of climate-smart practices most suited for their operations
 - Manage large-scale climate-smart data that will be used by producers to guide decision-making
 - Create market demand for climate-smart beef and bison commodities



Cow-Calf



BEEF PRODUCTION IN THE U.S.

Backgrounding



Stocker



Feedlot/Finishing



Cow-Calf



Post-wean grazing



BISON PRODUCTION IN THE U.S.

Grass Finishing



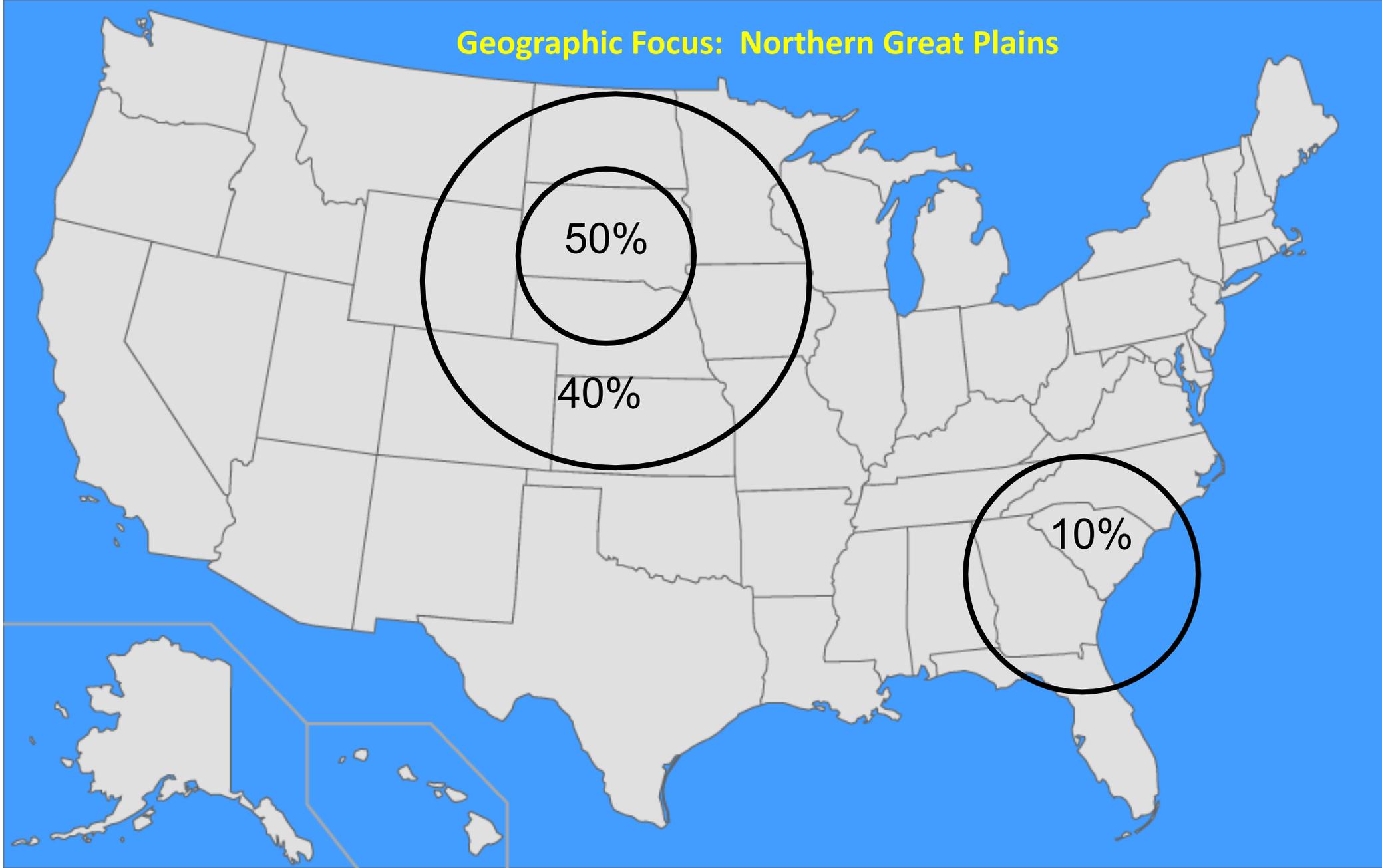
Feedlot Finishing



PROJECT OVERVIEW



Geographic Focus: Northern Great Plains



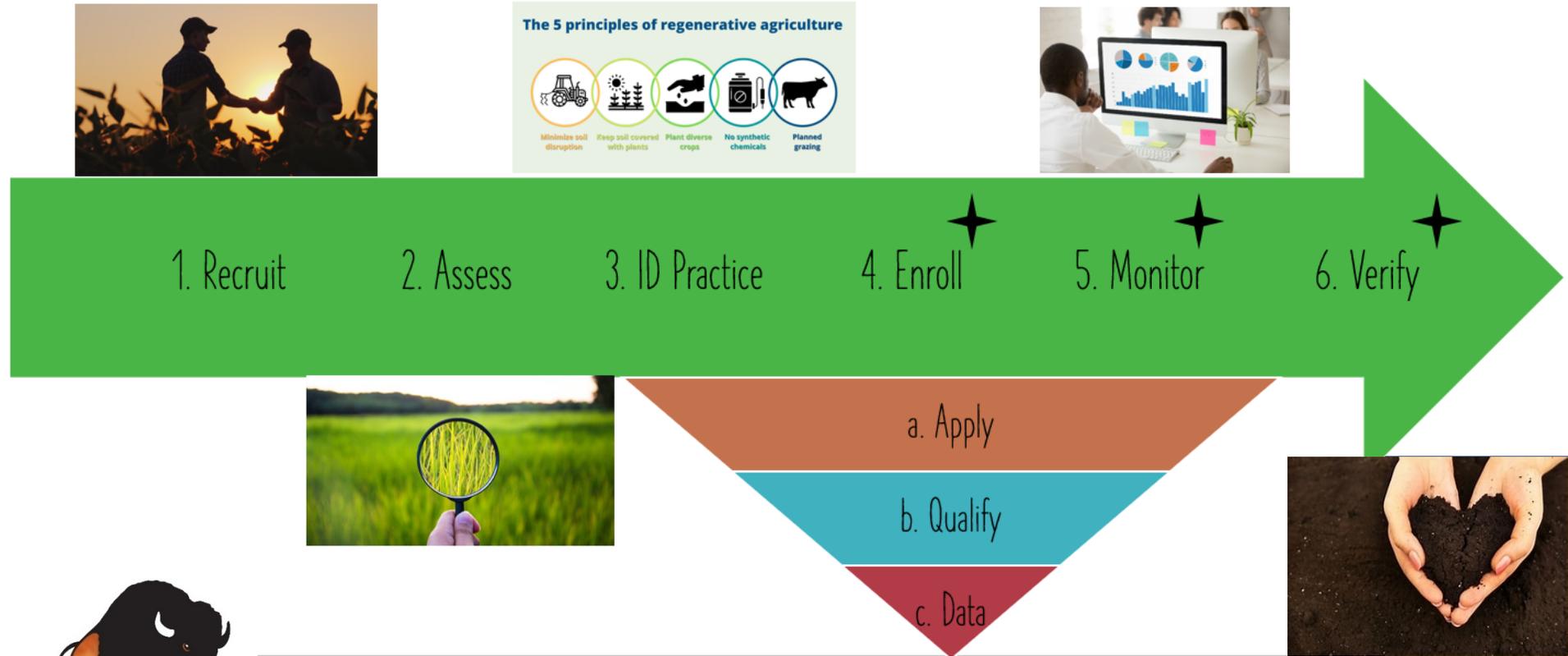


Incentives for Producers

- Incentives for implementing climate smart land management practices
 - Prescribed Grazing
 - Cover Crop Planting
 - Forage and Range Planting
 - Upland Wildlife Habitat Management
- Customized technical assistance
- Land and producer impact:
 - 850 producers
 - 970,000 million ha
 - \$24 (USD) million in incentive payments to producers
 - \$22 (USD) million in direct producer benefits
 - ~329,393 tonnes of CO₂ equivalence (COMET model)

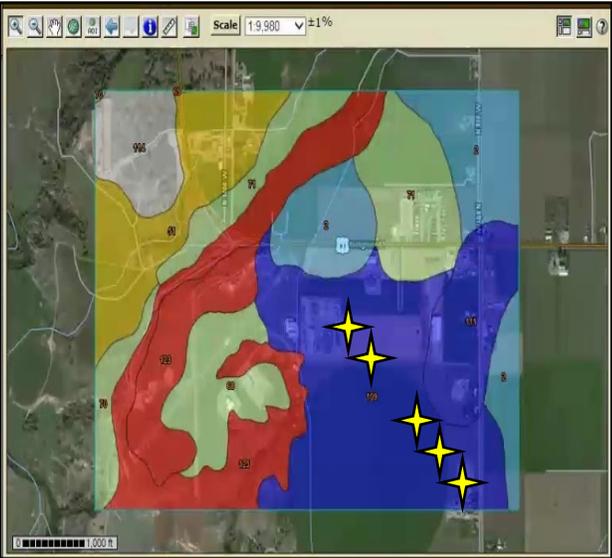


CLIMATE SMART PRACTICE IMPLEMENTATION AND VERIFICATION

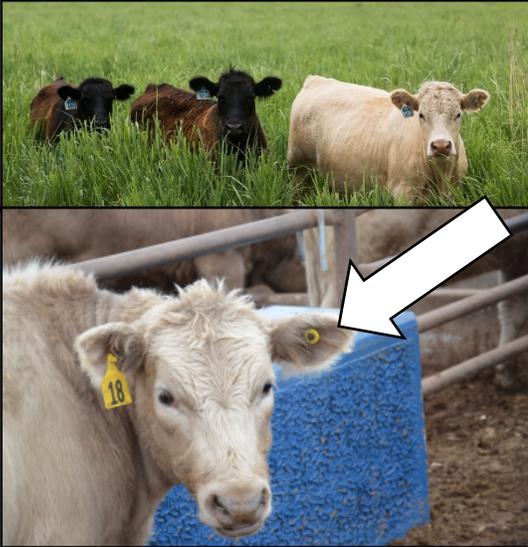


DATA COLLECTED AT PRODUCER SITES

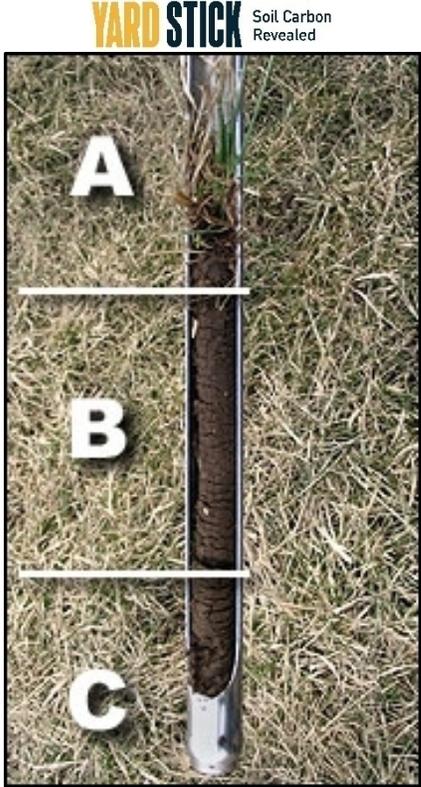
1. Land Information



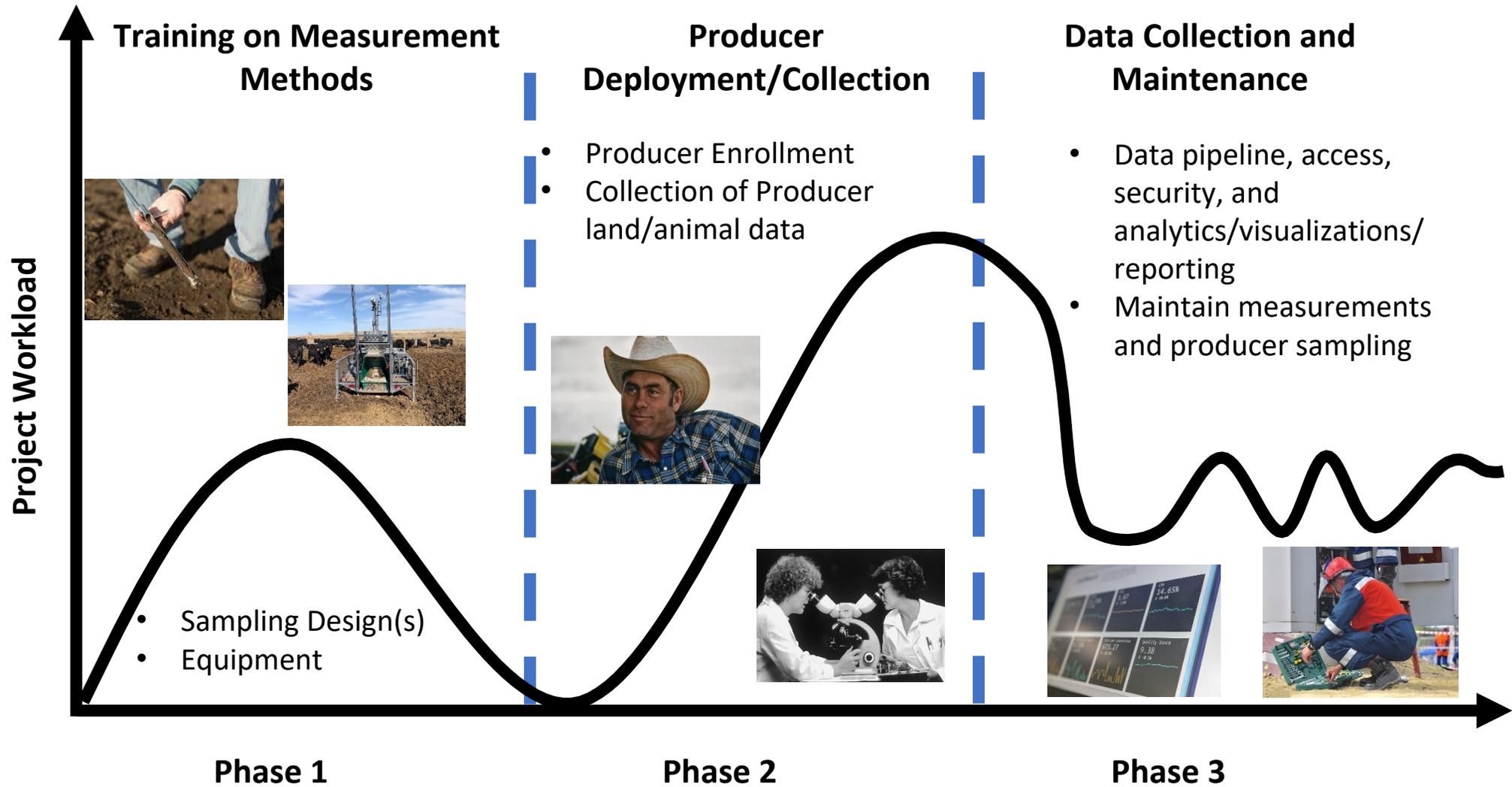
2. Animals (# hd, class)



3. Soil Data (Carbon)



Projected Learning Curve for Climate Smart Producer Engagement

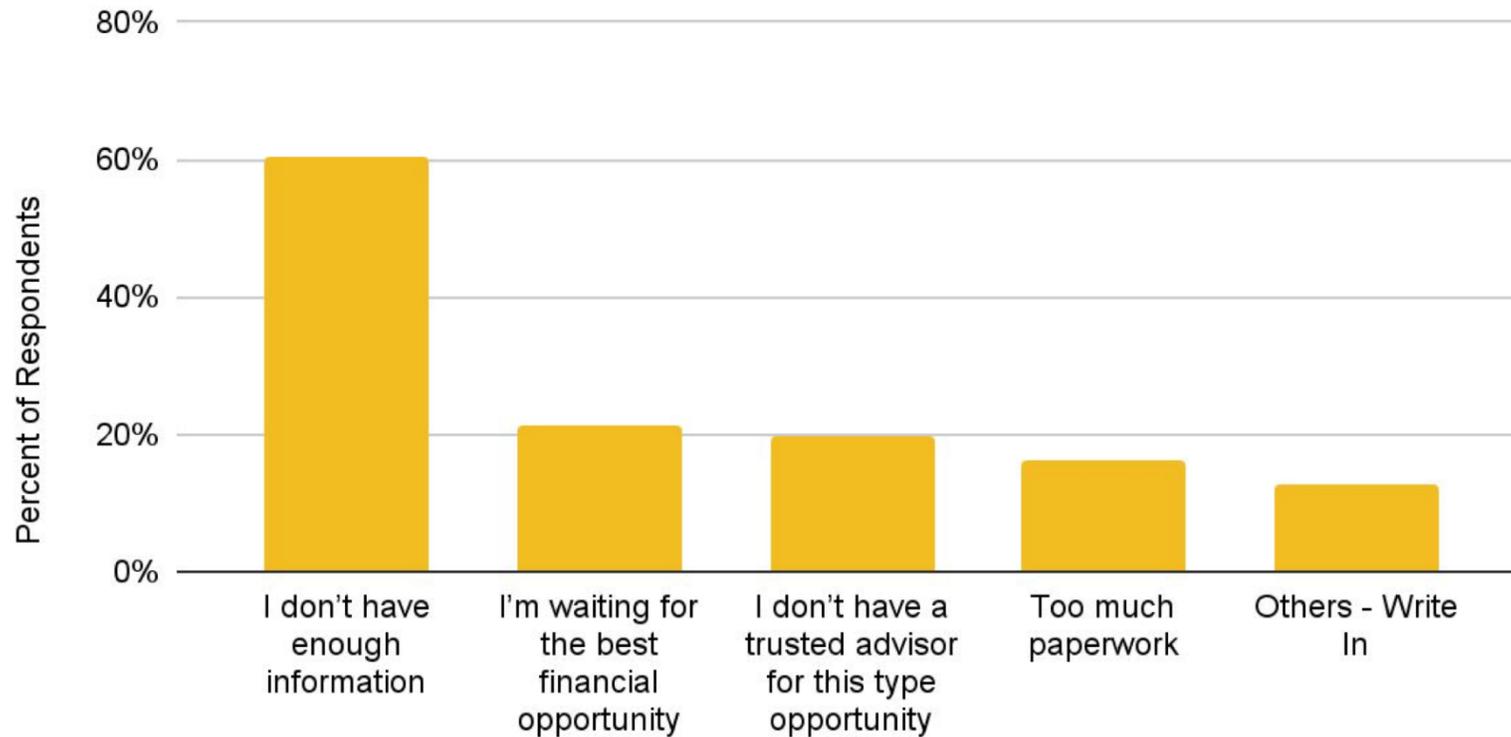


WOW, THAT'S “*REALLY NEAT*” BUT WHAT DOES IT MEAN FOR MY RANCH AND CONSUMERS?



BARRIERS TO ENROLLMENT

What stands between you and your participation in a sustainability or carbon program?



- Independent mind-set of farmers and ranchers
- Requirement for enrollment with government programs
- Allowing access to land and animal information



BENEFITS TO ENROLLMENT

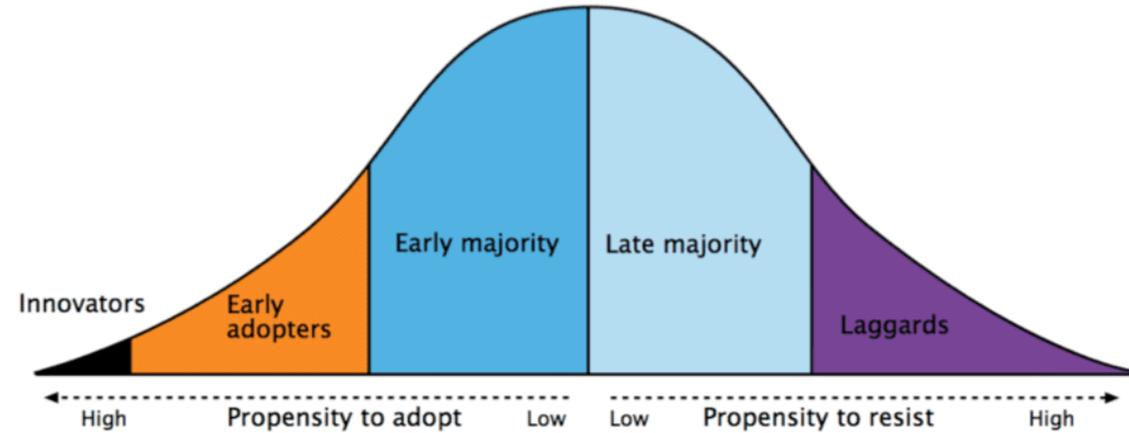


- Technical assistance provided
- Practice incentives (\$) provided for enrolled acres
- Data returned in a format that can be used to inform future decisions
- Inset benefits can be marketed (\$) with beef and bison calves



BARRIERS

- Understand producer/customer 'types'
 - Early adopters
 - Early majority
 - Late majority



- Ensure access by historically underserved producers
 - Native American Producers
 - Women Producers
 - Beginning Producers
 - Smaller Scale Producers



BENEFITS





Market Development



- Development of markets for beef and bison raised using climate smart land management practices
- Commodity – climate smart beef and bison calves
- Premiums:
 - Focused primarily on insets (practices)
- Instill confidence in beef and bison consumers
- Transition from incentivized insets to market-based premiums
- Producer and market impact:
 - 85,000 head of beef/27,000 head of bison
 - \$9,500,000 (USD) in premiums for beef and bison calves
- Position producers to merge into new market opportunities aligned with consumer preferences and demand.
 - Gain a competitive edge in this “climate-smart” world



PROJECT TEAM

▪ SDSU – West River

- Animal Science

- Kristi Cammack
- Amanda Blair
- Jamie Brennan
- Hector Menendez

- Plant Science

- Christopher Graham

- Natural Resource Mgmt.

- Krista Ehlert
- Jeff Martin
- Rachel Short

▪ Partners:

- AgSpire
- Tanka Fund
- National Bison Association
- Adopt Ag
- Millborn Seeds
- Cold Creek Buffalo Co.
- Texas A&M
- C-Lock
- Yard Stick





THANK YOU

■ www.sdstate.edu/climate-smart

Acknowledgement: USDA Partnerships for Climate Smart Commodities
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