



“AgroClimate Outreach Exchange”

*Increasing Your Climate-Related
Knowledge, Confidence, and Network*



Dannele Peck
dannele.peck@usda.gov

Ag in Uncertain Times webinar
May 12, 2021



Vision: Maintain and strengthen agricultural production & natural resources under increasing climate variability and change.



Photo credit: NOAA



Photo credit: UNL Extension

Mission: Co-develop science-based, region-specific info & tech for working-land managers to enable climate-informed decisions, in collaboration with internal (USDA) and external research, extension & education partners.



Climate Hubs

U.S. DEPARTMENT OF AGRICULTURE





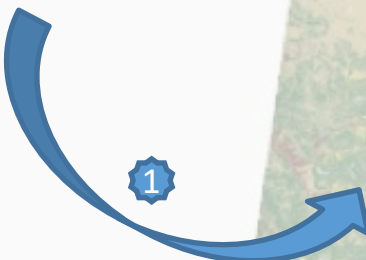
How do Climate Hubs work?



Farmers, Ranchers, Foresters & Service Providers



N



USDA Northern Plains Climate Hub
U.S. DEPARTMENT OF AGRICULTURE



USDA NORTHERN PLAINS CLIMATE HUB
Climate information benefiting agriculture and forestry



Networks & Partnerships are the Key!

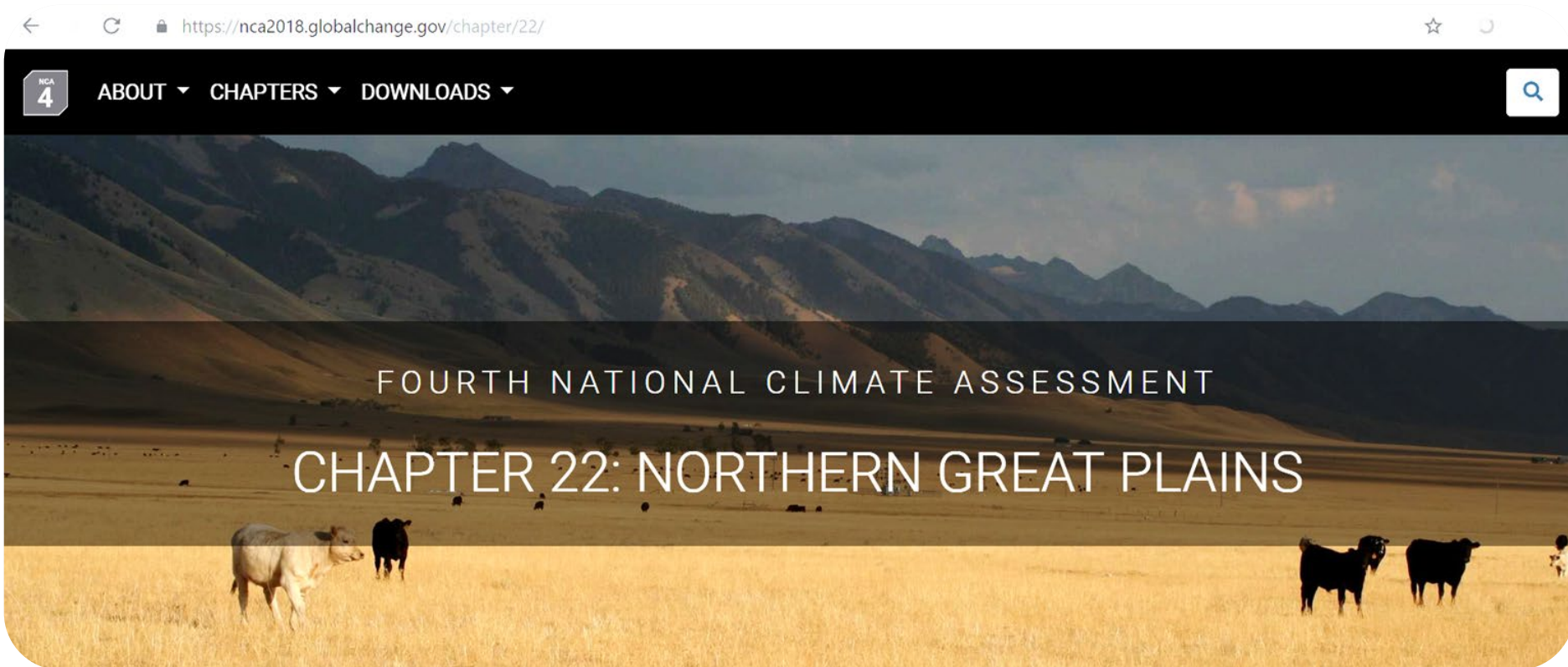
Hub's Guiding Principles

- **Interface between *science & services* through 3 functional areas:**
 1. Science translation & synthesis
 2. Tool development & tech transfer
 3. Stakeholder outreach & education

1. Science Translation & Synthesis

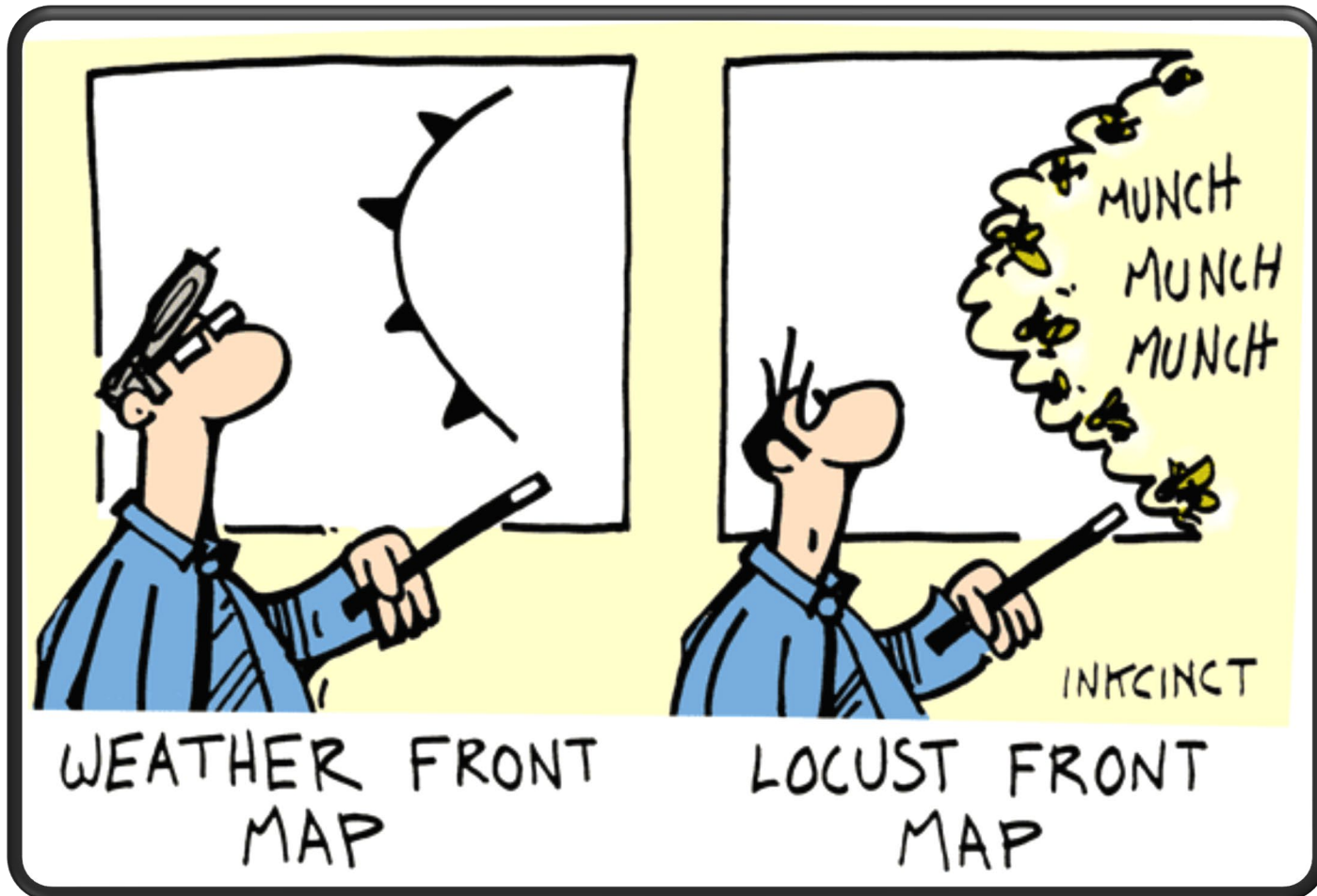
Fourth National Climate Assessment

- Agriculture
- Recreation & Tourism



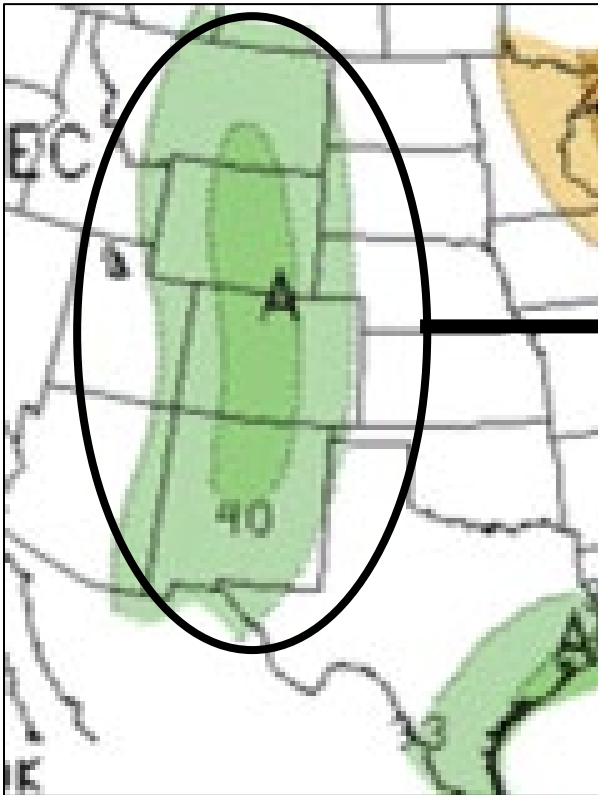
<https://nca2018.globalchange.gov/>

2. Tool Development & Technology Transfer



Making Weather Info Usable for Ag

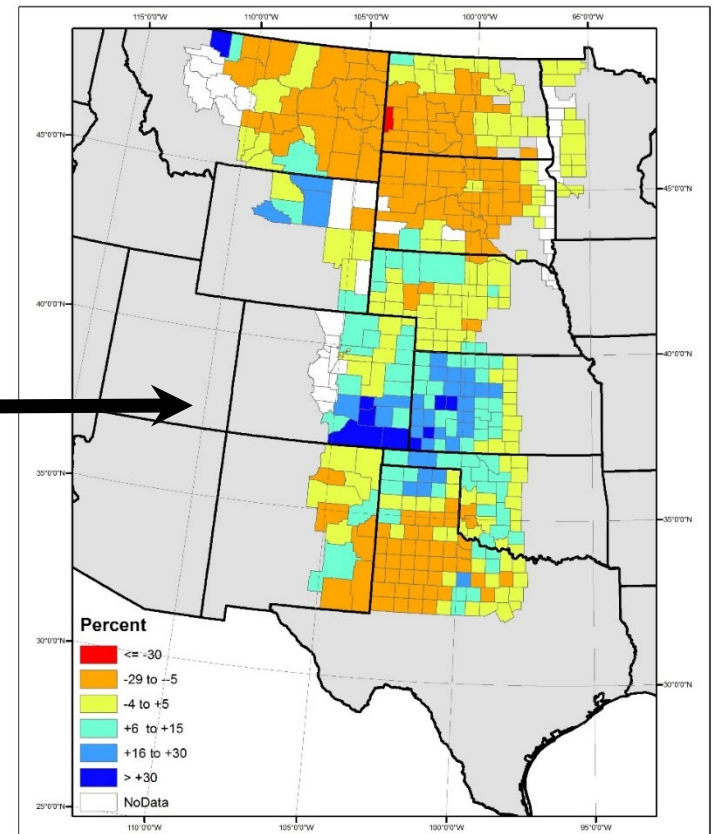
Seasonal Outlook



What does
this
MEAN
for a
rancher?

“Grass-Cast”

Percent Change in 2017 Predicted NPP compared to 1986 - 2016 mean NPP (%)



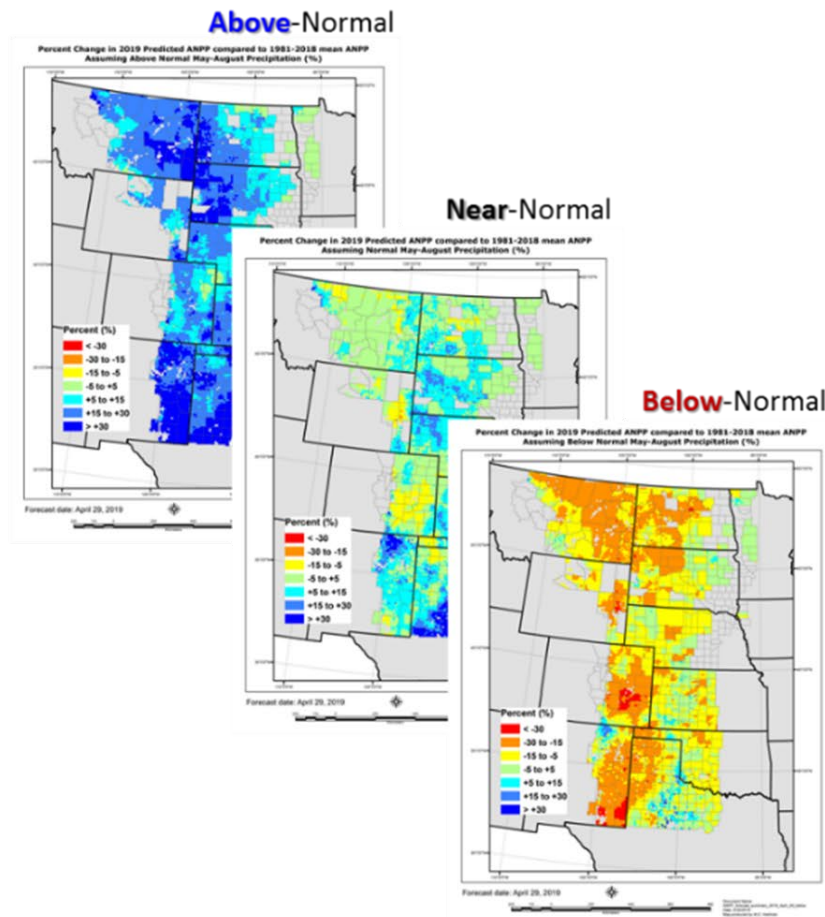
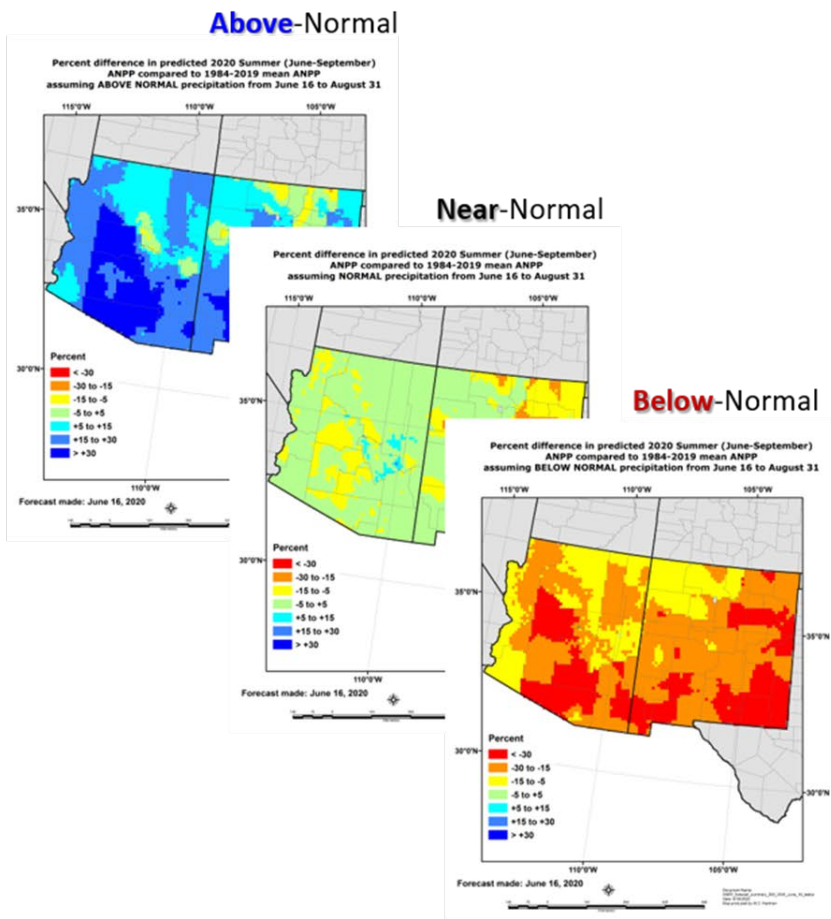
Data are from 6/12/2017.



THREE-MONTH OU
PRECIPITATION |
0.5 MONTH LEAD
VALID MJJ 2017
MADE 20 APR 20



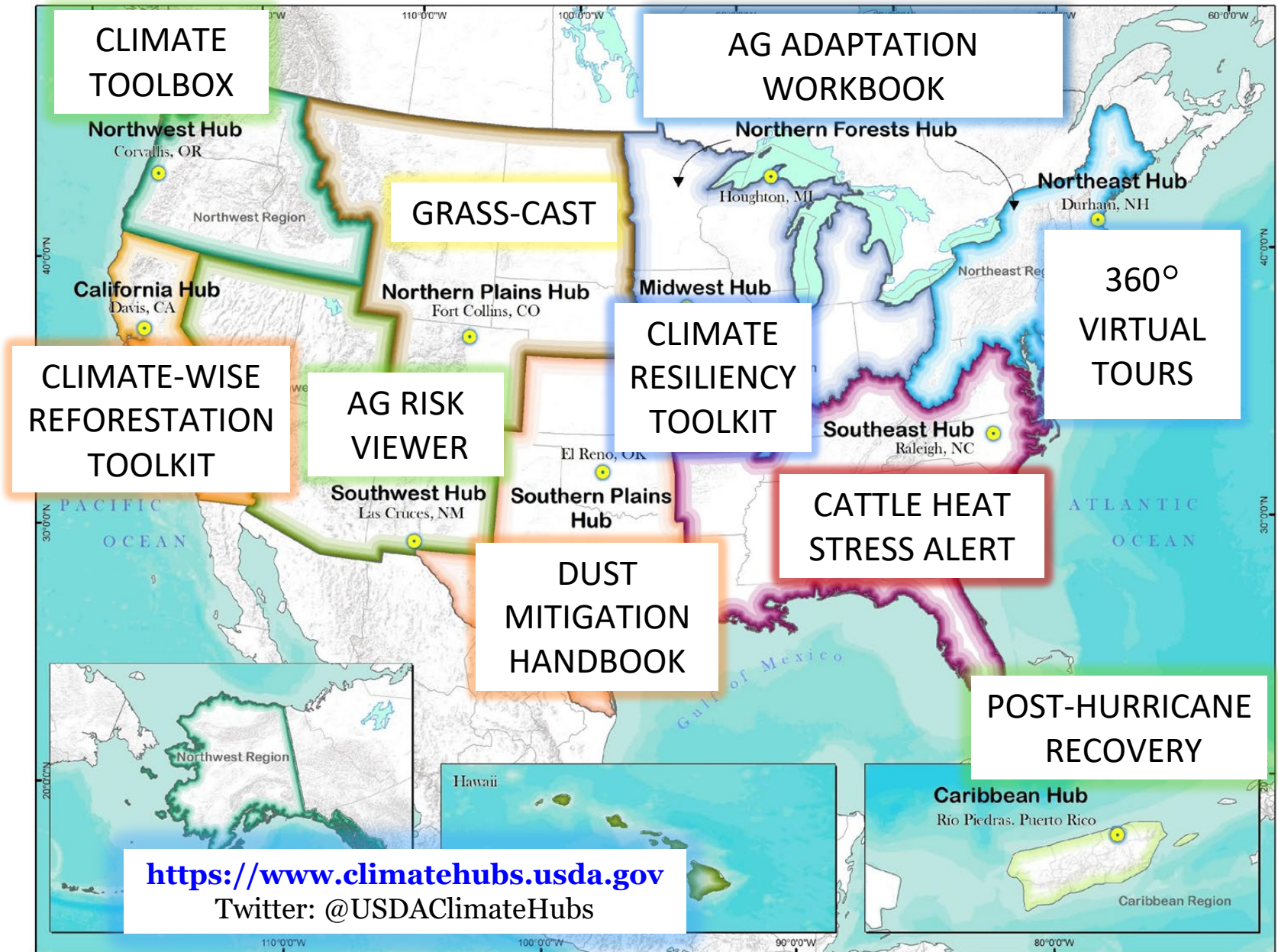
Grass-Cast: how much **more** or **less** vegetation will my grasslands grow if precipitation during the rest of the growing season is...



grasscast.unl.edu

USDA is an equal opportunity provider, employer, and lender.

Other Tools from the Climate Hubs

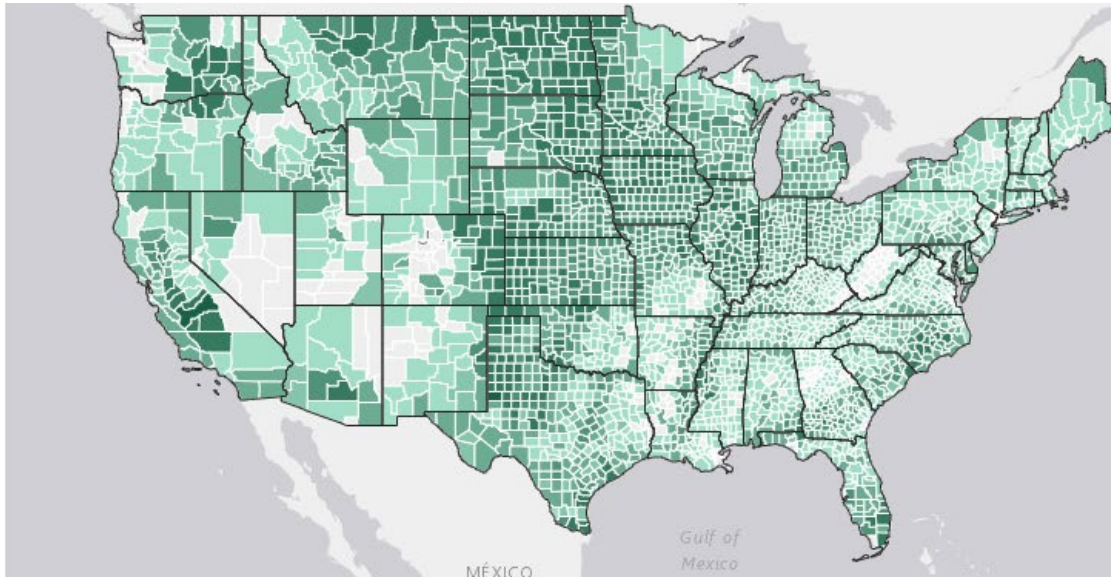


AgRisk Viewer

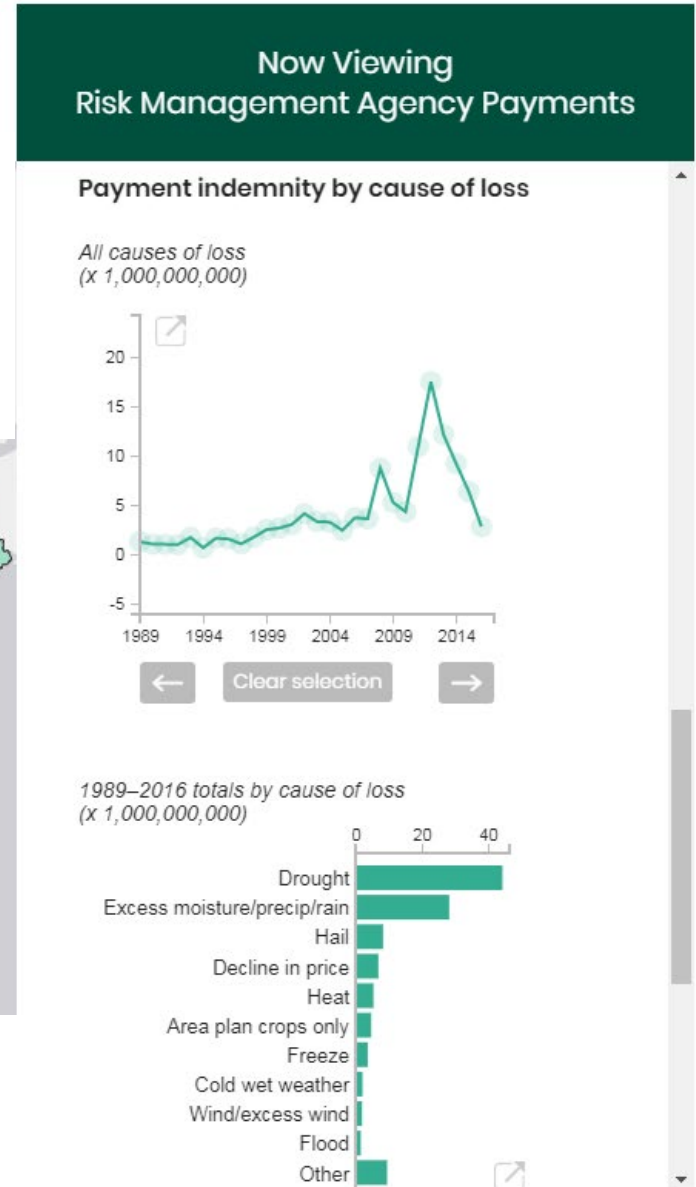
USDA SOUTHWEST CLIMATE HUB

Interactive crop-loss data viewer

- Crop insurance payments & acres
- Cause of loss (e.g., drought, hail)



- By crop, month, or year, at the county, state, or national level



<https://swclimatehub.info/rma/>

The Climate Toolbox

A collection of web tools for visualizing past and projected climate and hydrology of the contiguous United States.



AGRICULTURE



CLIMATE



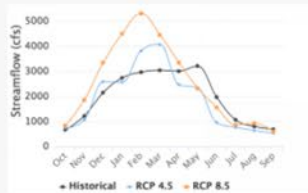
FIRE



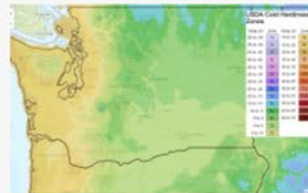
WATER



Future Climate Dashboard
Dashboard of future climate projections for a location [i](#)



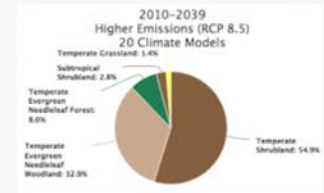
Future Streamflows
Graphs of future streamflow projections for a stream



Future Cold Hardiness Zones
Maps of future projections of



Future Crop Suitability
Map of future crop suitability and projections for a location



Future Vegetation
Maps of future vegetation projections [i](#)



Northwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

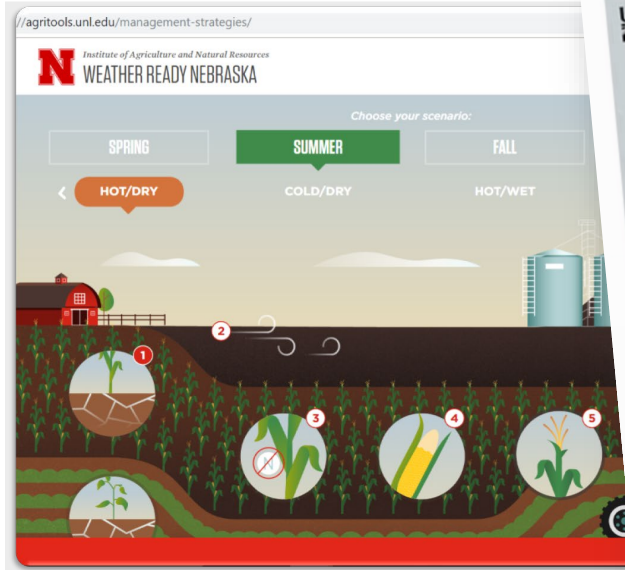
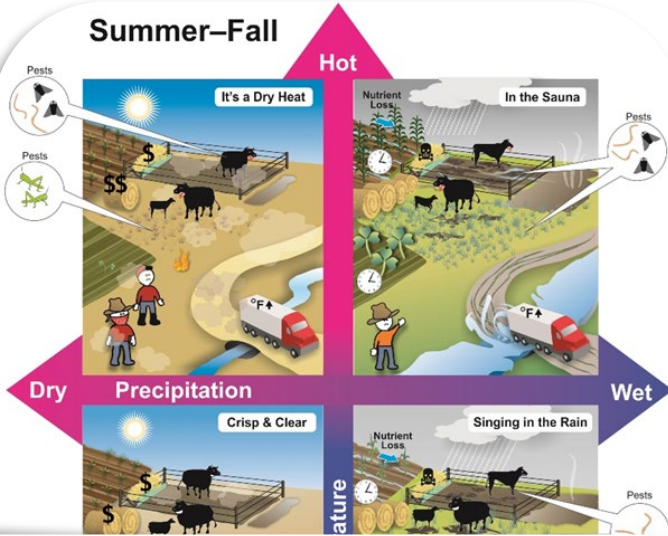
3. Outreach & Education



AgroClimate Outreach Exchange

Future event in the works!

- March 25-26, 2019
- Fort Collins, Colorado
- 6 Hub-funded Extension projects
- 65 outreach partners



AgroClimate Outreach Exchange

Objectives

- 1) Celebrate our Extension partners' innovative agroclimate projects; **enhance their use & expansion** by other outreach professionals.



AgroClimate Outreach Exchange

Objectives

- 2) Enhance E&O professionals' **familiarity & confidence in communicating** the latest **science on climate** trends & agriculture.



AgroClimate Outreach Exchange

Interactive Approaches

To *actively demonstrate* how to implement creative engagement methods & tools.

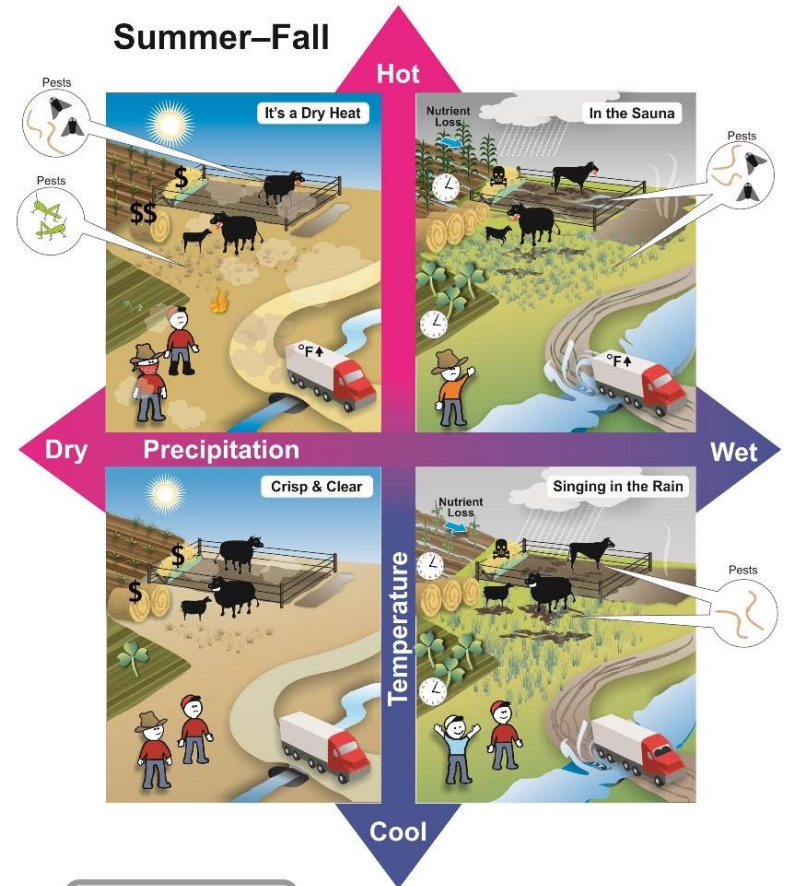
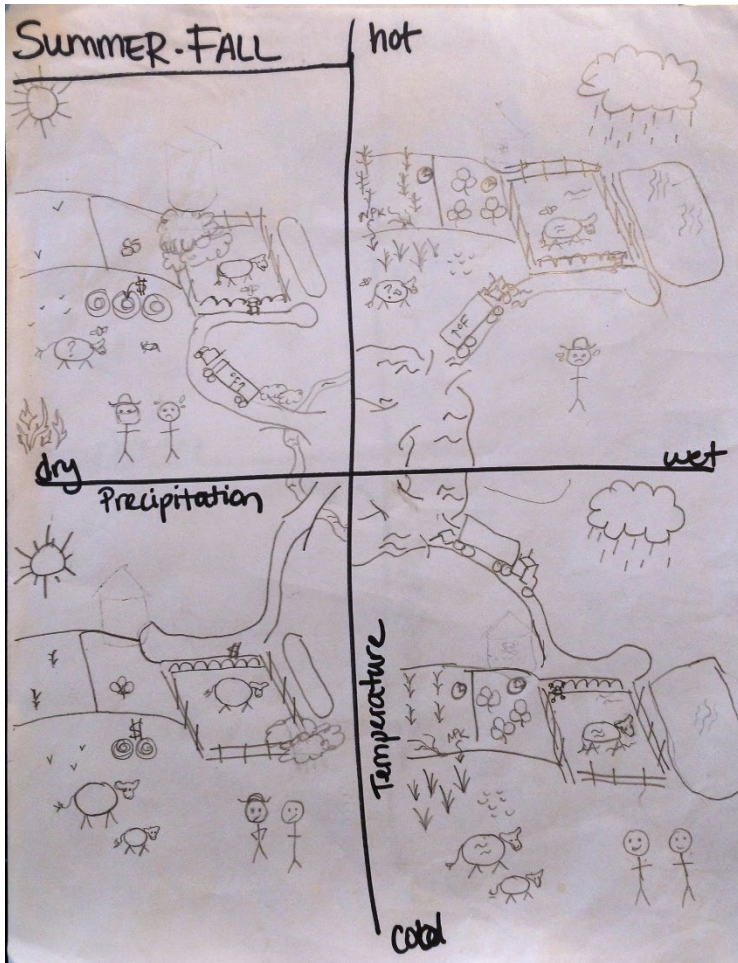


Examples of
Agroclimate Projects

in the Northern Plains states of
CO, WY, MT, ND, SD, NE

Explore all of the projects at
<https://go.usa.gov/xHGnu>

“Scenario Planning” Project



Overall Drivers

- Economics
- Regulations
- Taxes
- People
- Local Conditions

“Scenario Planning” Project #2



MANAGEMENT STRATEGIES

1

Soil moisture decrease

Quick Tips: Reduce seeding rate, irrigate, surface residues, drought-tolerant crop

Resource: *Soil Management for Water* (UNL)

N
EXTENSION

<https://weather-ready.unl.edu/>

A story map



Learning From Your Neighbor: Climate Resiliency in Agriculture

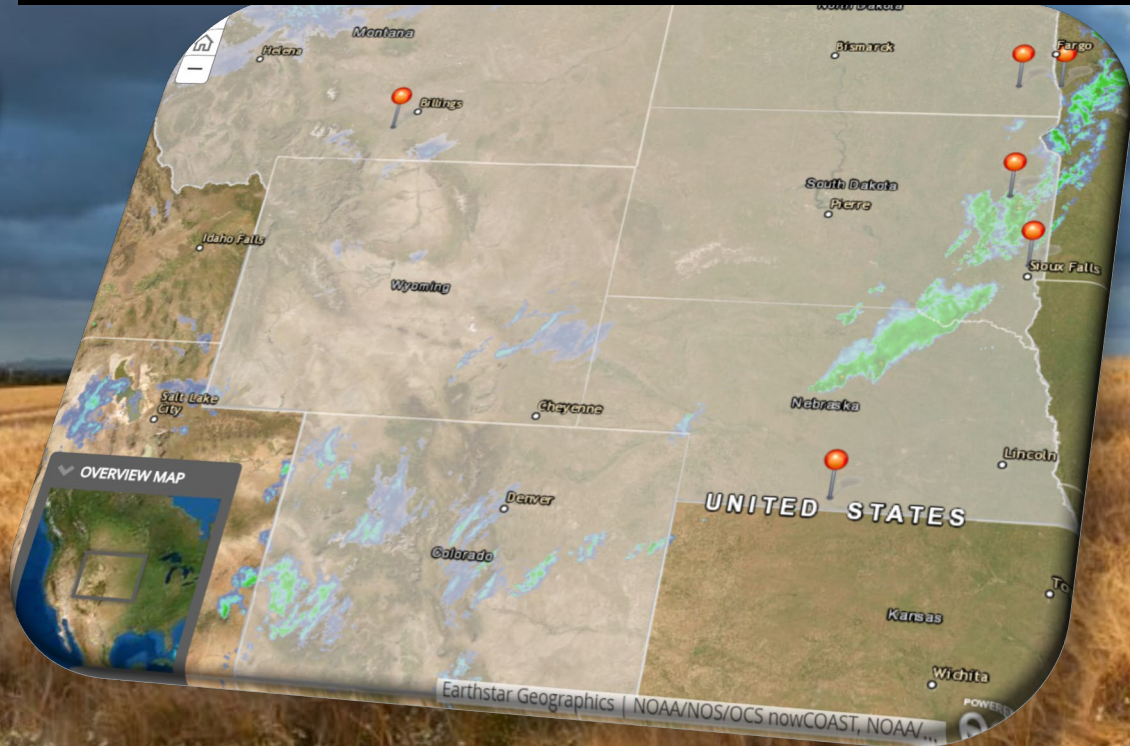


The Producers

Join us as we meet with and learn from agriculture producers in the Northern Plains about innovative strategies they are implementing in hopes of being more resilient to risks.

A StoryMap of
producers' adventures
in resilience!

<https://bit.ly/3n5CcJV>



Learning From Your Neighbor: Climate Resiliency in Agriculture

No and Strip Till Management: Tyler Speich in DeLamere, North Dakota



Early Experiments in Cover Crops: Marlin Murdoch in Orleans, Nebraska

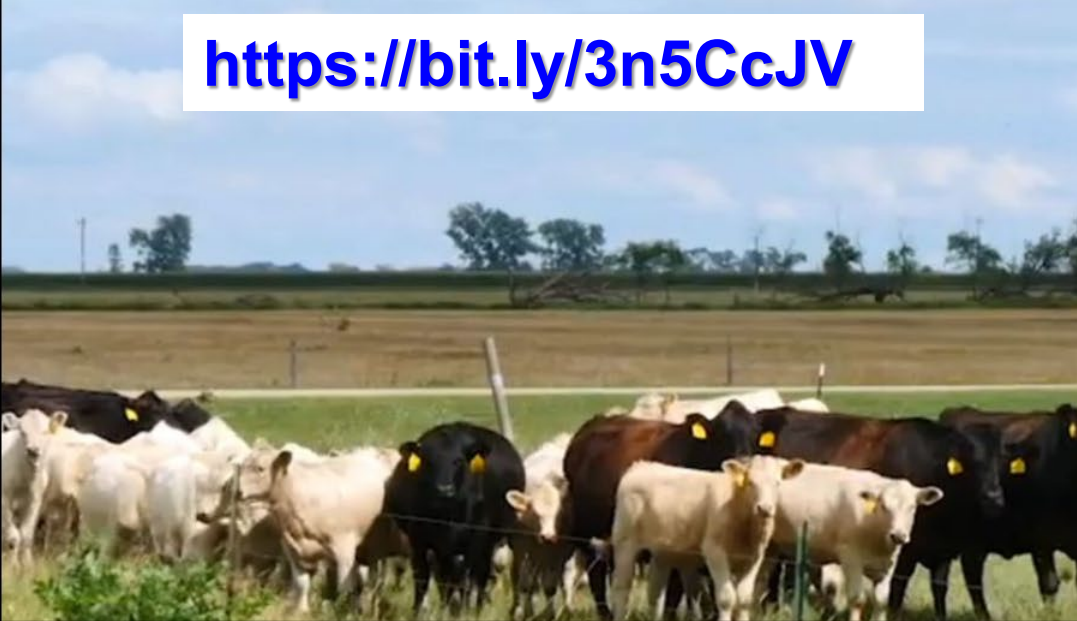


<https://bit.ly/3n5CcJV>



Grazing Cattle on Cover Crops: Tyler Speich in DeLamere, North Dakota

<https://bit.ly/3n5CcJV>



Learning From Your Neighbor: Climate Resiliency in Agriculture

Soil Improvements: Greg Schelemmer in Fromberg, Montana



A NEW *ONE-STOP* SHOP!!!

Ranch Drought Monitoring Dashboard

<https://bit.ly/2QZtrqG>

Jump to:

- **What is my Current Drought Situation?**
 - Use + to open tabs, choose from dropdown boxes, and learn more.
 - Use to view map layers.
- **How Does this Year Compare to Last Year?**
 - Compare the current U.S. Drought Monitor with the map one-year ago. Use drop-downs to explore other time-frames.
- **What can I expect for forage production this year? Grass-Cast & State-Specific Forage Calculators**
 - Learn more about Grass-Cast and explore state-specific forage calculators.
- **Could I still get enough precipitation to change forage production expectations?**
 - See key precipitation months for your area and explore likelihood of receiving enough precipitation to change forage production
- **What are my options for drought management?**
 - Explore drought management strategies recommended by grazing experts and resources available in your state (Great Plains).

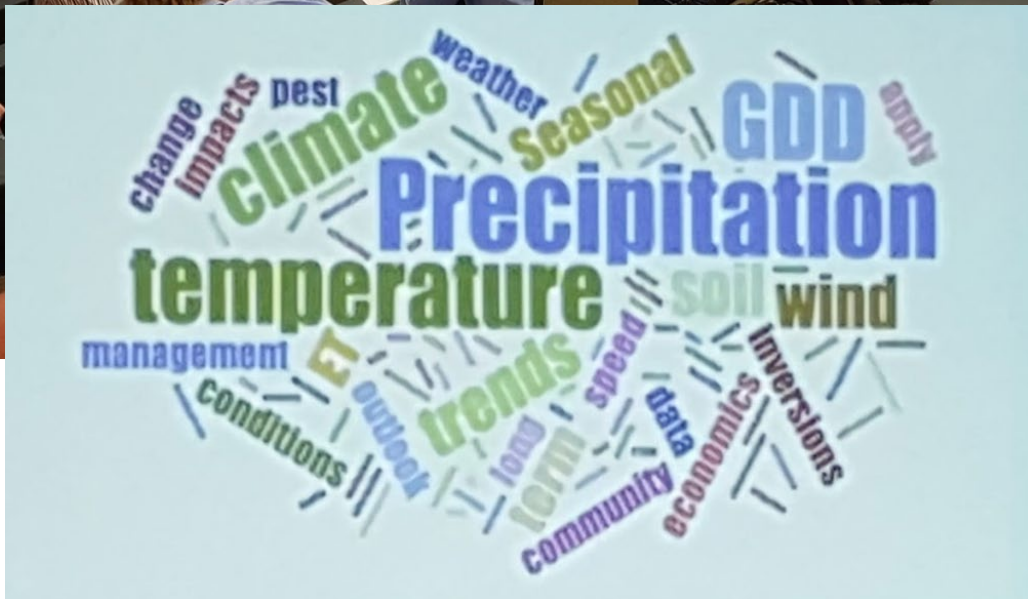
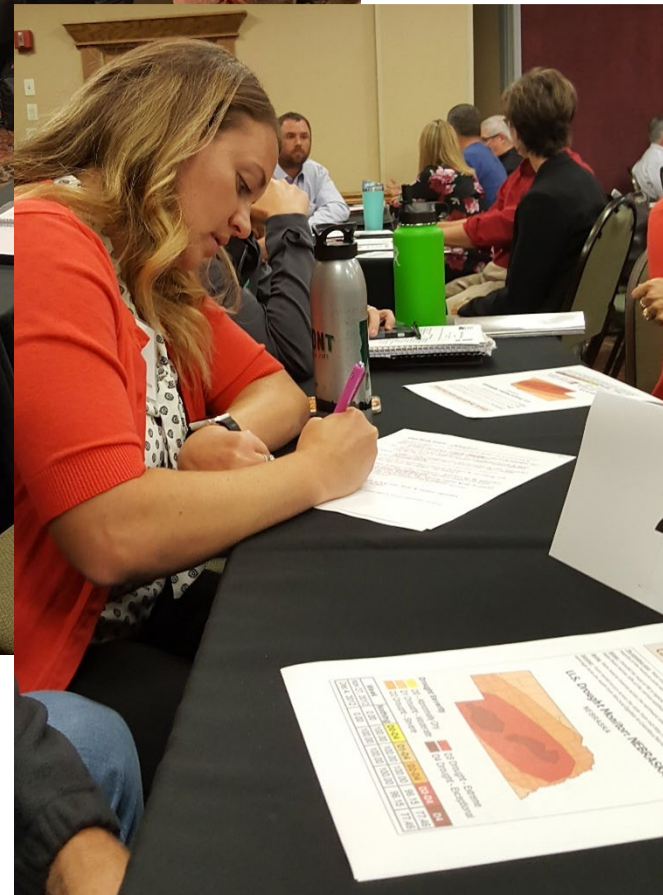


Developed in collaboration with USDA Climate Hubs and Extension partners, with funding by the USDA.





Extension & USDA Climate Training





<https://www.climatehubs.usda.gov>

Twitter: @USDAClimateHubs

What can we achieve *together as partners?*

Dannele Peck
NPCH Director
dannele.peck@usda.gov

USDA NIFA RFP
Extension, Education & USDA
Climate Hubs Partnership
Webinar: May 13, 3-4pm ET (1-2pm MT)
<https://go.usa.gov/xHGNY>

Extra Slides & Resources

Climate = Your
Wardrobe



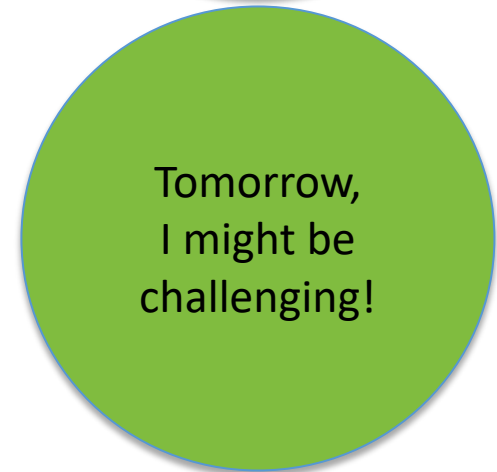
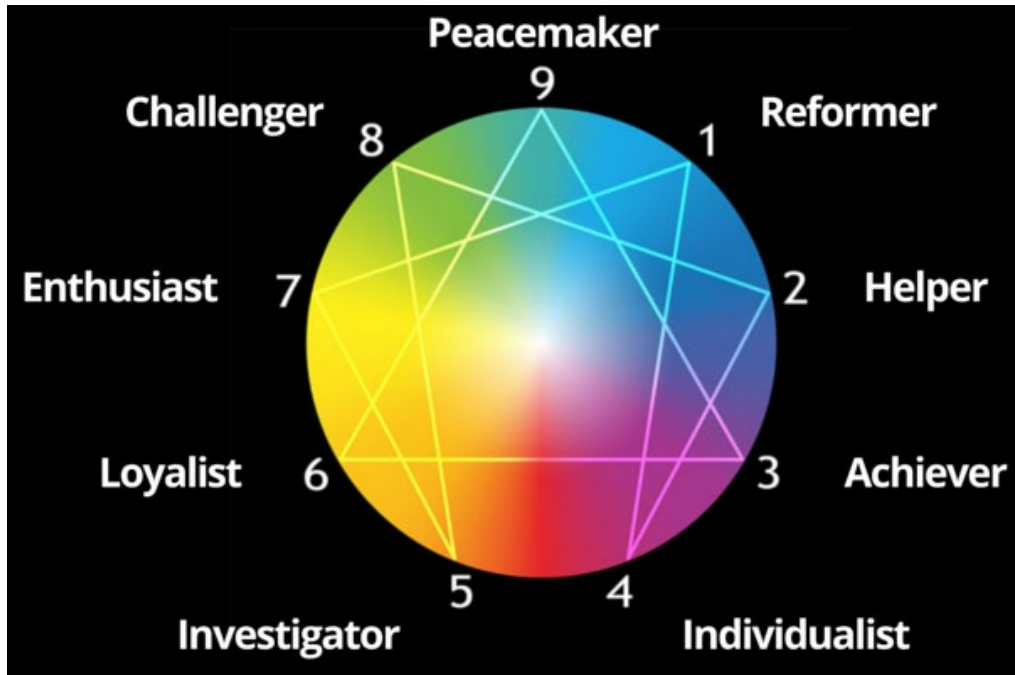
Weather = Your
Outfit Today



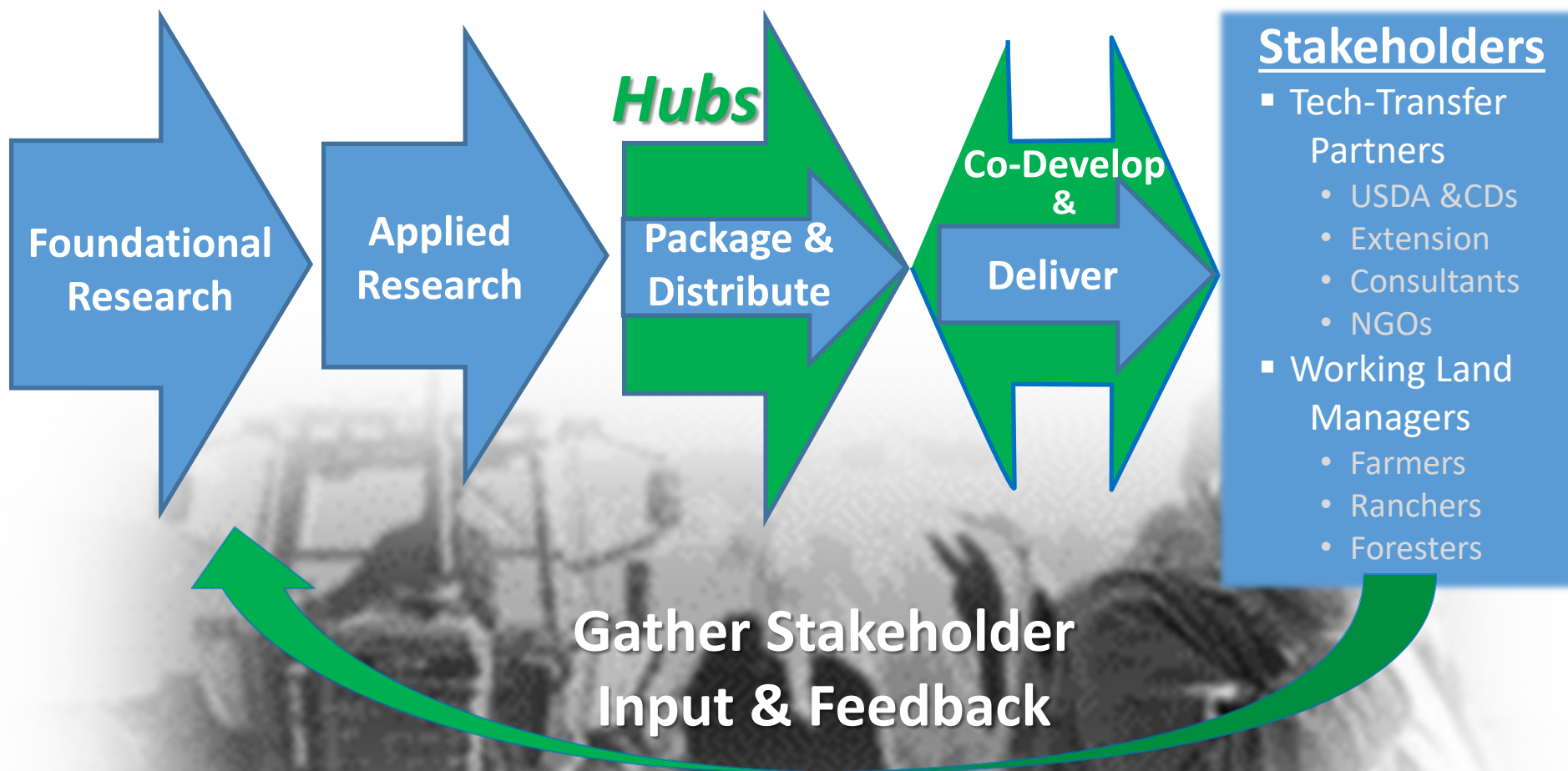
Climate is a
COLLECTION of
Your **Weather**

Climate = Your
Personality Overall

Weather = Your
Mood Lately



Motivation for the USDA Climate Hubs



* Empower *stakeholders* by co-developing useful info & tools about climate & ag!

Hub's Guiding Principles

- **Span boundaries thru *partnerships***
 - Agriculture ↔ Climate/Weather Scientists
 - Across USDA (ARS, FS, NRCS, FSA, APHIS)
 - USDA ↔ Other Feds (DOI, NOAA)
 - USDA ↔ Boundary Organizations (Extension)
 - USDA ↔ Tribes, States, NGOs, producers

Hub's Guiding Principles

- **Interface between *science & services* through 3 functional areas:**
 1. Science translation & synthesis
 2. Tool development & tech transfer
 3. Stakeholder outreach & education

Science Synthesis

The story of USDA ARS's Collaborative Adaptive Rangeland Management Project

Adobe Spark page by Hailey Wilmer et al.



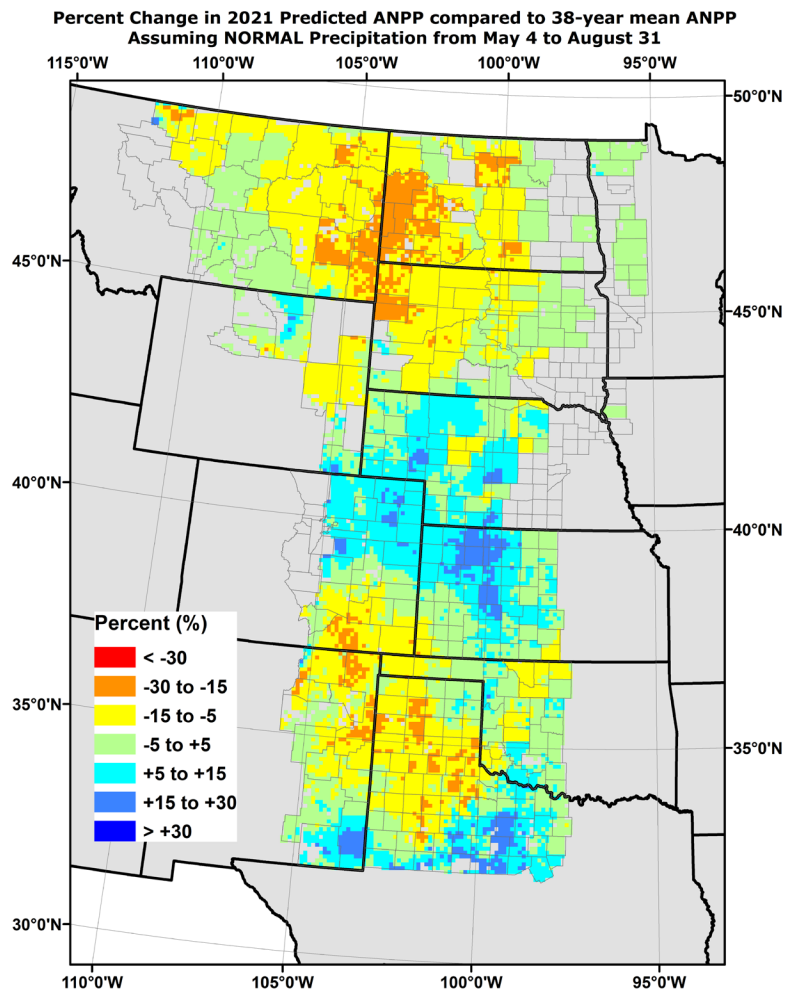
Beef & Birds

CAN CONSERVATION & BEEF PRODUCTION FIND COMMON GROUND?

<https://spark.adobe.com/page/cDD9u5v5ZeC88/>

Tool Development

“Grass-Cast”



“Based on **observed weather** + **future weather scenarios**... we expect **grassland productivity** in *your county*... to be **X% higher** or **lower** than your county’s 30-year average.”

Outreach & Education

MAKING A DROUGHT PLAN

II. PLAN | STRATEGIES | FLEXIBILITY & RISK MANAGEMENT

1

MOBILITY

Move risk and resources across space.

Examples: Secure forage/pastures in diverse landscape/topographic positions, or far from one another.

2

STORAGE

Move risk and resources across time.

Examples: Hay/forage storage, grass-banking.

4

POOLING

Move risk and resources across organizations or households.

Examples: Broad social networks to exchange innovations, ideas, technology, labor, equipment, forage, etc.

3

DIVERSIFICATION

Move risk and resources across asset class.

Examples: Diversified income and agricultural activities, diverse classes (e.g. yearling cattle and cow-calf), breeds, and species of livestock. Diversification of livestock class can enable flexible stocking rate decision-making.

5

MARKET EXCHANGE

Market-based adaptation strategies.

Examples: Insurance-based risk management, non-traditional marketing strategies, and forage purchase.

**FIVE WAYS TO
IMPROVE FLEXIBILITY
AND REDUCE RISK**

<https://bit.ly/3xXWifo>

RESILIENT
Weather-Ready Ranching

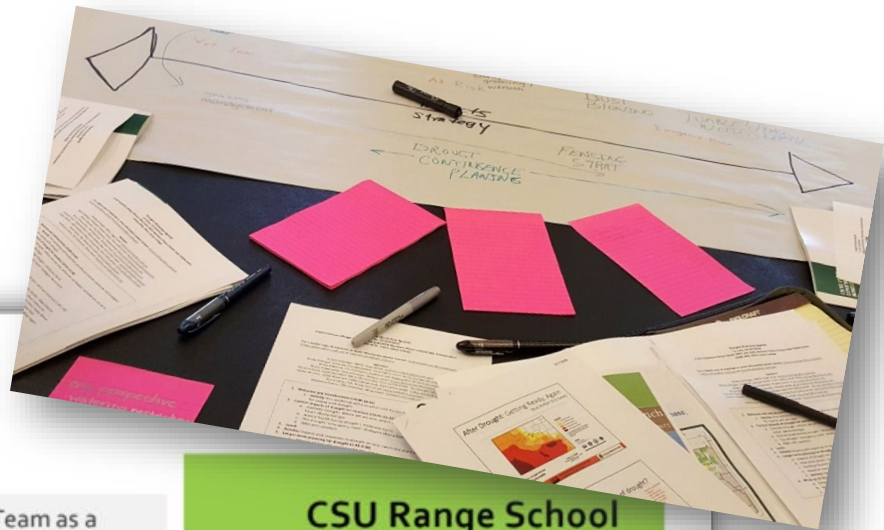


LIVESTOCK AND RANGE
COLORADO STATE UNIVERSITY



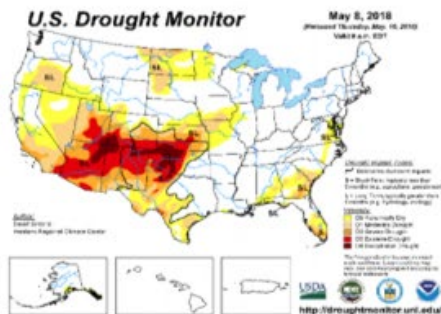
Northern Plains Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Colorado Drought Workshop Materials



CSU RANGE SCHOOL DROUGHT WORKSHOPS REPORT MAY, 2018

Summary: Drought was identified by the CSU Extension Range Technical Team as a high priority for workshop topics in 2017. The drought committee worked to develop and implement five range drought management workshops in Western Colorado/New Mexico in the winter of 2017/18. We focused on drought management skill-building for ranchers (managing extensive rangelands/farmlands, including both private, public lands) and other range managers. Skills covered included preemptive (planning for drought and maintaining flexibility), real-time (employing adaptive strategies during drought), and post-drought adaptation. Over 185 ranchers, public land managers, and other community members attended the five, 3 hour workshops.



Workshops Completed (Number attending)

- San Juan Basin Beef Symposium, Farmington, NM (70)
- Rifle, CO (18)
- Montrose, CO (15)
- Durango, CO (70+)
- Dove Creek, CO (12)

CSU Range School Drought Workshops Report May, 2018

Retta Bruegger, Regional Specialist, Range Management- Western Region, Colorado State University Extension
Retta.Bruegger@colostate.edu



LIVESTOCK AND RANGE
COLORADO STATE UNIVERSITY

Hailey Wilmer, Fellow, USDA-Northern Plains Climate Hub
Hailey.wilmer@ars.usda.gov



USDA Northern Plains Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

<https://bit.ly/3o4Tk4u>

<https://bit.ly/3xXWifo>



Climate Hubs
U.S. DEPARTMENT OF AGRICULTURE



COLORADO STATE UNIVERSITY
EXTENSION

Ranching with Wildfire:

Producers & Partners
share lessons learned

Ranching with WILDFIRE: LESSONS LEARNED FROM FELLOW PRODUCERS



University of Wyoming Extension & Montana State University Extension
Two-Part session
organized by

10:00 – 10:50am Wildfire
10:50 – 11:00am

from WY ranchers & agency partners
Please COME BACK for the second half of our session!
learned from WY ranchers & agency partners

Wyoming livestock producers
& agency partners through
experiences with major wildfires***

Experiences with wildfire
places where fire hit public grazing allotments
places where fire affected private lands

Wildfire preparedness, response, recovery
Moderator

South Dakota State University*



Other Climate Hubs' Outreach Efforts



Adaptation Workbook

Northern Forests Climate Hub

<https://adaptationworkbook.org/>

→ ↻ 🔒 https://adaptationworkbook.org ☆ 🔍 D

Adaptation Workbook

[Get started](#) [About](#) [How to Use](#) [Explore](#) [Training](#) [Log In](#) [Contact](#)

Adaptation Workbook

a climate change tool for land management and conservation

[Get Started](#)

[About](#)



FORESTS



URBAN FORESTS



AGRICULTURE



Midwest CHU

Climate Hub Update

Winter 2020

To receive the Midwest Climate Hub's Quarterly Outlooks,
email Dennis.Todey@usda.gov

Quarterly Climate Impacts and Outlooks

Missouri River Basin

Midwest Region

Great Lakes Region

In collaboration with NOAA, NIDIS, and the Midwest Regional Climate Center, we are pleased to provide the following December 2019, Regional Outlooks and Drought Status Update. These can be accessed by clicking on their titles to the right. Select here for a list of all regions.



2020 Monthly North Central U.S. Climate and Drought Update WEBINAR

This is a National Oceanic & Atmospheric Administration (NOAA) and climate partners monthly briefing that covers the region from the Rockies to the Great Lakes. Subject matter includes a summary of past and current conditions in terms of many climate variables like snowpack, temperatures, precipitation, etc... In addition, potential and ongoing impacts from climate phenomena will be considered across sectors (agriculture, water resources, etc...). Finally, outlook information from two weeks to the next few months/seasons will be discussed.

To sign up for these webinars, please go



<https://attendee.gotowebinar.com/register/7528179497868100876>

The dates of the webinars are:

THU, MAR 19, 2020, 01:00 PM - 02:00 PM CDT

FRI, APR 16, 2020, 01:00 PM - 02:00 PM CDT

THU, MAY 21, 2020, 01:00 PM - 02:00 PM CDT

Connecting Ag to USDA Resources

Resources to Recovery

'Bomb Cyclone' of March 2019
Blizzard & Flood Recovery

March 18th, 2019

<https://bit.ly/3et7rx7>



Climate Hubs

U.S. DEPARTMENT OF AGRICULTURE

Connecting Ag to USDA Resources

For Loss or Damage to Hay or Forage

USDA FSA Emergency Assistance for Livestock Program (ELAP)

- This program covers some livestock losses that do not fall under the Livestock Indemnity Program.
- For example, ELAP may be able to assist with flood-related feed losses, such as hay bales or other forage sources lost or damaged in the flood.

Managing Flood-Damaged Hay

- [How to Handle Hay Following a Flood](#)
(bulletin from Texas A&M)



Connecting Ag to USDA Resources

USDA FSA Livestock Indemnity Program (LIP)

- If you have suffered livestock losses, report them to your FSA county office within 30 days of when the losses become apparent.
 - This 30-day notification window is ****critical!** A phone call to the county office works for this notification.
 - Some producers had extreme weather in February and suffered livestock losses. Depending on when those losses occurred in February, that notification window may be closing soon.
- Documentation of losses is ****critical**:
 - FSA will need supporting evidence of your losses: veterinarian certification or other independent third-party certification of cause of loss, cattle inventory records, rendering receipts (if applicable), dated photos or video.
 - For animals swept away in floodwaters, contact your local FSA Office right away to discuss how to document the loss.
 - FSA will need to know the type or weight of the animals lost. LIP applies differently for adults vs. yearlings vs. calves.
 - Information about the specific weather conditions that caused the losses is also important to provide (*See 'Additional Resources' below for gathering this information*).



[USDA FSA Livestock Indemnity Program](#)

<https://bit.ly/3et7rx7>

Connecting Ag to USDA Resources

ADDITIONAL RESOURCES

USDA FSA Livestock Indemnity Program (LIP) <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/livestock-indemnity/index>

LIP Fact Sheet [https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/FactSheets/2018/livestock indemnity program fact sheet dec 2018.pdf](https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/FactSheets/2018/livestock%20indemnity%20program%20fact%20sheet%20dec%202018.pdf)

Nebraska Extension Flood Resources and Information <https://flood.unl.edu/>

Nebraska Rural Response Hotline 1-800-464-0258

Nebraska Farm Bureau Disaster Page <https://www.nefb.org/get-involved/disaster-assistance>

NDSU Flood Information <https://www.ag.ndsu.edu/flood/>


Resources to Aid in Documenting Weather Conditions at the Time of Loss

Mesonet's Cattle Comfort Index https://www.mesonet.org/index.php/agriculture/category/livestock/cattle/cattle_comfort_advisor#group=statewide_maps

National Weather Service's Cold Advisory for Newborn Livestock
<https://www.weather.gov/bis/canl>

Safety tips & more farm-related flood recovery resources from eXtension
<https://articles.extension.org/pages/33184/recover-from-a-flood>

USDA Climate Hubs <https://www.climatehubs.oce.usda.gov>

 @USDAClimateHubs @PeckAgEc @dennistodey @NDSU_eX_Steward
@tylerw_unl @SDSUclimate @NWS



Climate Hubs
U.S. DEPARTMENT OF AGRICULTURE

UNIVERSITY OF
Nebraska
Lincoln | **EXTENSION**

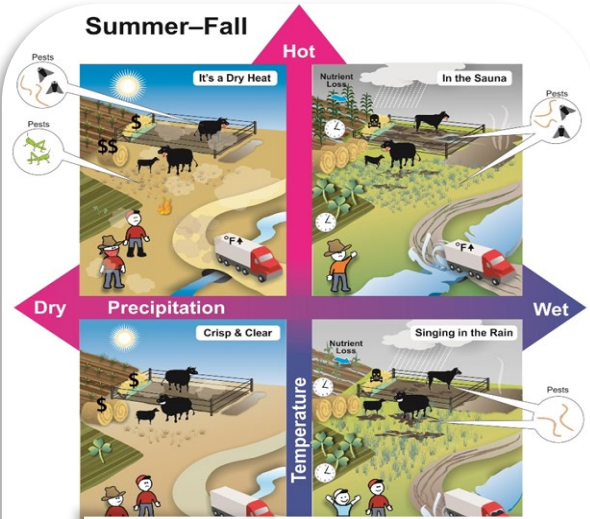
NDSU | **EXTENSION**

SDSU
Extension

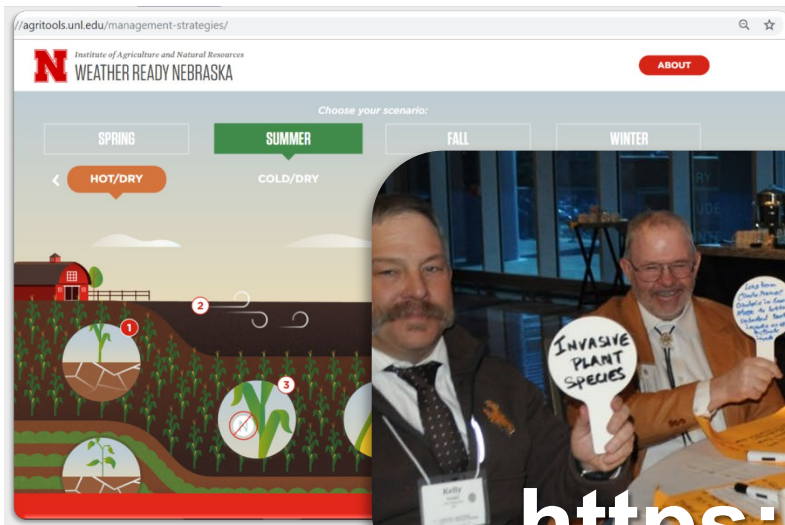


<https://bit.ly/3et7rx7>

AgroClimate Outreach Exchange



GOAL: To foster the exchange & spread of **innovative agroclimate outreach tools** & approaches that our Extension partners have developed.



<https://go.usa.gov/xHGNu>

AgroClimate Outreach Exchange

<https://go.usa.gov/xHGnu>

Agenda Day 1, PM

- Climate literacy & communication
- 2 AgroClimate E&O projects:
 - ✓ Learning Lab
 - ✓ Scenario Planning
- *Interactive:*
 - ✓ Around the Kitchen Table!

Day 1	Monday, March 25
CSU - Lory Student Center Grand Ballroom D 1101 Center Avenue Mall Fort Collins, CO 80521	
1:00 - 1:15 PM	Welcome and Event Kickoff: <i>Reagan Waskom, CSU & Dannele Peck, USDA NPCH</i>
1:15 - 2:00 PM	Exploring the N. Great Plains' Changing Climate: <i>Katharine Hayhoe (Virtual), Texas Tech University & Brad Udall, CSU</i> <i>Presentations recommended by Dr. Hayhoe: W. TX A&M & TEDx</i> <i>- also, visit & explore her Global Weirding Channel.</i>
2:00 - 2:15 PM	Celebrating 5 Years of Partnership: <i>Justin Derner, USDA ARS</i>
2:15 - 3:15 PM	Climate is for Everyone: From 4-H to Farm Communities <ul style="list-style-type: none">• <i>Climate Learning Laboratory: Paul Lachapelle, MSU</i>• <i>Scenario Planning: Rick Stowell, UNL</i>
3:15 - 3:30 PM	Break
3:30 - 4:30 PM	<i>Around the Kitchen Table:</i> An interactive session gathering & sharing of agroclimate outreach efforts by colleagues around your table: <i>Dannele Peck & Windy Kelley, USDA NPCH</i>
4:30 - 5:00 PM	Closing Remarks & Preview: <i>Dannele Peck, USDA NPCH</i>
5:00 - 6:30 PM	Networking Reception Hosted by the Colorado Water Center with Cash Bar

AgroClimate Outreach Exchange

<https://go.usa.gov/xHGnu>

Agenda Day 2, AM

- 4 AgroClimate E&O projects:
 - ✓ Beef & Birds
 - ✓ Wildfire Kits
 - ✓ Learn from Neighbors
 - ✓ Climate Smart Ag
- *Interactive:*
 - ✓ Growing Ideas!
 - ✓ Rancher Panel

8:00 - 8:15 AM	Coffee and Settle-in
8:15 - 9:00 AM	Welcome Back and Reflect on Day 1: <i>Lou Swanson, CSU & Justin Derner, USDA ARS</i>
9:00 - 10:00 AM	Climate is for Everyone: Communicating to Inspire Action <ul style="list-style-type: none">• Beef & Birds - Communicating Science: <i>Hailey Wilmer, USDA NPCH with CSU & UNL</i>• Wildfire Lessons Learned & Kits: <i>Domo Woodham, MSU</i>
10:00 - 10:15 AM	Break
10:15 - 11:15 AM	Climate is for Everyone: Enabling Lifelong Learning <ul style="list-style-type: none">• Learning From Your Neighbor: <i>Windy Kelley, UW</i>• Climate Smart Ag Modules: <i>Brad Udall, CSU</i>
11:15 - 12:00 PM	Growing Ideas: An interactive session to explore, discuss, & expand mini-grant efforts across boundaries <ul style="list-style-type: none">• AgriTools & Hail Know: <i>Tyler Williams (Virtual), UNL</i>• World Cafe: <i>Dannele Peck & Windy Kelley, USDA NPCH</i>
12:00 - 1:15 PM	Lunch & Keynote Speakers: <i>Climate is Not a Four-Letter Word: Moderated by Hailey Wilmer, USDA NPCH</i> <i>Mr. O'Toole and Mr. Sommers will share their observations from the ranch about changing conditions & their advice on engaging agricultural stakeholders in conversations about climate.</i> <ul style="list-style-type: none">• Patrick O'Toole: <i>A rancher operating in northern Colorado/southern Wyoming.</i>• Albert Sommers: <i>A rancher operating in western Wyoming.</i>• Q&A

AgroClimate Outreach Exchange

<https://go.usa.gov/xHGnu>

1:30 - 2:30 PM	<p>Orchestrating Effective Outreach During Drought: Lessons from 2017 & 2018: <i>Moderated by Elizabeth Ossowski, NIDIS</i></p> <ul style="list-style-type: none">• <i>Miranda Meehan, NDSU</i><ul style="list-style-type: none">◦ Coordinating university, state, and federal drought response; Extension on-line drought impact form.• <i>Laura Edwards, SDSU</i><ul style="list-style-type: none">◦ Hosting community drought listening sessions.• <i>Hailey Wilmer, USDA NPCH with CSU</i><ul style="list-style-type: none">◦ In-depth, full-day workshops with communities; Meeting people where they are: knowing their drought conditions & cultural contexts.
2:30 - 3:30 PM	<p>Getting Ready for Drought Response: An interactive session to explore how well prepared our Extension & outreach teams are to spring into action when drought knocks on our doors.: <i>Rick Stowell, UNL & USDA NPCH</i></p>
3:30 - 4:00 PM	<p>Report Out: <i>Rick Stowell, UNL with USDA NPCH capturing take home messages</i></p>
4:00 - 5:00 PM	<p>Closing Remarks by Extension Directors & Administrators: <i>Moderated by Dannele Peck, USDA NPCH</i></p> <ul style="list-style-type: none">• <i>Lou Swanson, CSU</i>• <i>Cody Stone, MSU</i>• <i>Charlie Stoltenow, NDSU</i>• <i>Karla Trautman, SDSU</i>• <i>Chuck Hibberd, UNL (absent with apologies)</i>• <i>Kelly Crane, UW</i>

Agenda Day 2, PM

- Lessons from '17-18 Drought:
✓ **ND, SD, CO**
- *Interactive:*
✓ **Get Ready for Drought Response in YOUR State!**
- Extension Leadership's Perspective