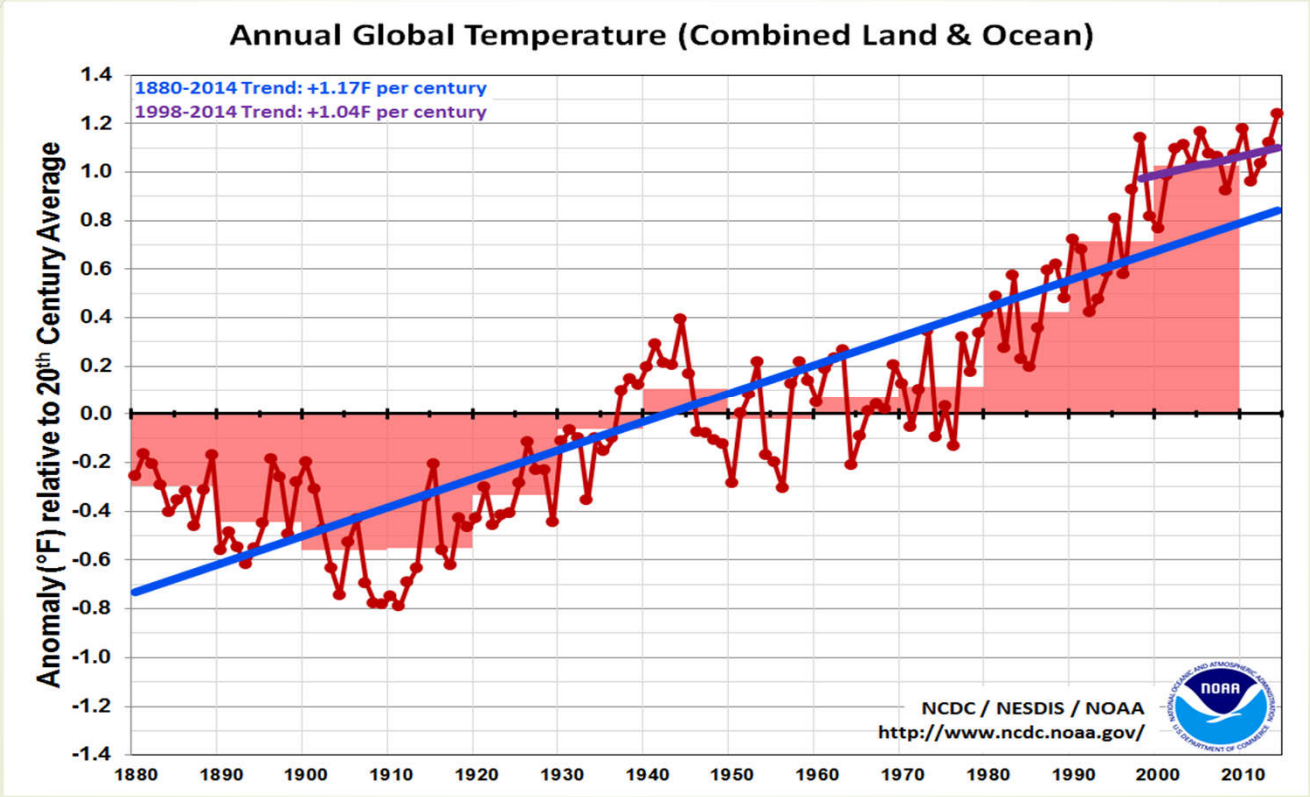
USDA Regional partnerships- Examples from the Climate Hubs

Dealing with extreme weather through research, resources and outreach

Clay Pope-Coordinator, Southern Plains Climate Hub

Climate change

THE PROBLEM IS REAL



USDA Climate Hub Network

- **Mission: To develop and deliver science-based, region-specific information and technologies for agricultural and natural resource managers that enable climate-smart decision-making and provide assistance to enable land managers to implement those decisions.**

- **The Climate Hubs link USDA research and program agencies in their regional delivery of timely and authoritative tools and information to agricultural producers and professionals.**


Pacific Islands
Corvallis, OR
Pacific Northwest
Northern Plains
Houghton, MI
Durham, NH
Ithaca, NY
Ames, IA
University Park, PA
Northeast
Davis, CA
Midwest
Fort Collins, CO
Southwest
El Reno, OK
Raleigh, NC
Las Cruces, NM
Southern Plains
Southeast
Puerto Rico
Rio Piedras, PR
View National Land Cover Dataset Legend

Focus on Soil health

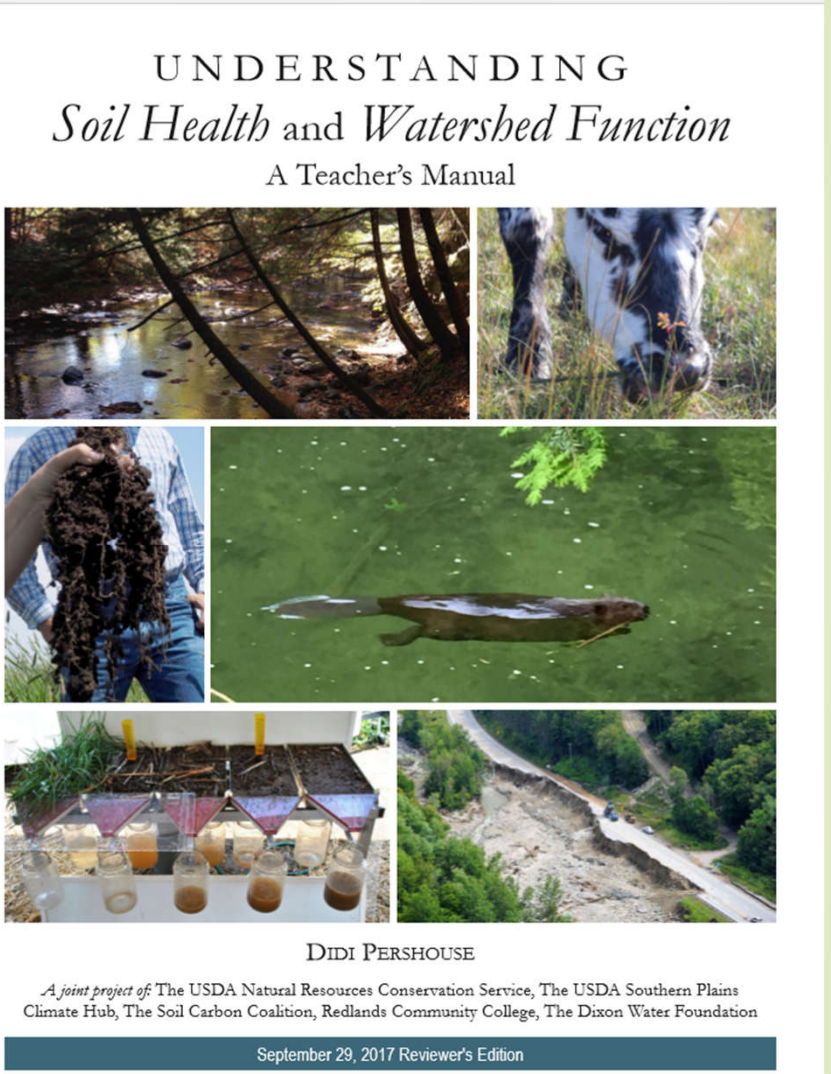
- First of the original USDA climate change "building blocks"
- To adapt to climate change we need producers to "harden" their farming and ranching operations to extreme weather events
- We need producers to reduce erosion, hold on to more soil moisture, improve pasture conditions and control soil temperature
- We need producers to increase organic matter and/or improve health of the sub-soil microbial community

SOIL HEALTH EDUCATION

- Soil Health is a primary “building block” of USDA Climate Change action
- Partner with NRCS, Local Districts and State Conservation Agencies on soil health events
- Providing research on soil health and the multiple benefits generated by soil health practices
- Facilitating soil health partnerships

SOIL HEALTH EDUCATION

- Developed soil health curriculum in partnership with NRCS and Soil Carbon Coalition.
- Originally designed for FFA and 4-H but can be used by anyone at any age.
- Can be used to create a youth soil health course, for adult education or to supplement existing lesson plans.
- Aligned with Next Generation Science Standards, Common Core State Standards, and Agricultural Education Standards for ease of use in U.S. schools.
- Available free from the Climate Hubs or the Soil Carbon Coalition.
- Downloaded by individuals in 50 countries and over 40 U.S. States



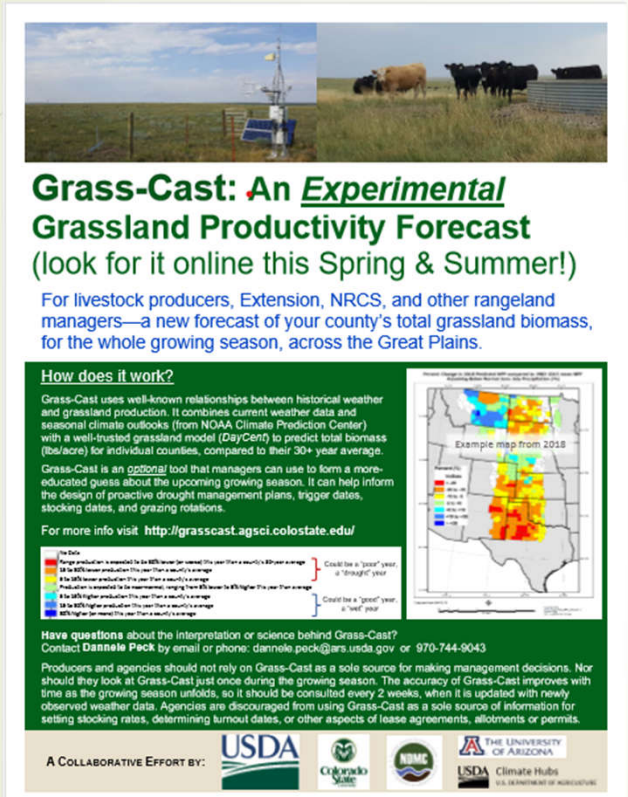
Tools for producers and Districts

The tools range from specialized calculators to maps, models and datasets estimating a variety of outputs

Certain tools may be more relevant to farmers and ranchers to aid in year-to-year decision-making

Other tools are more useful for researchers studying agriculture and climate change

Grass-Cast

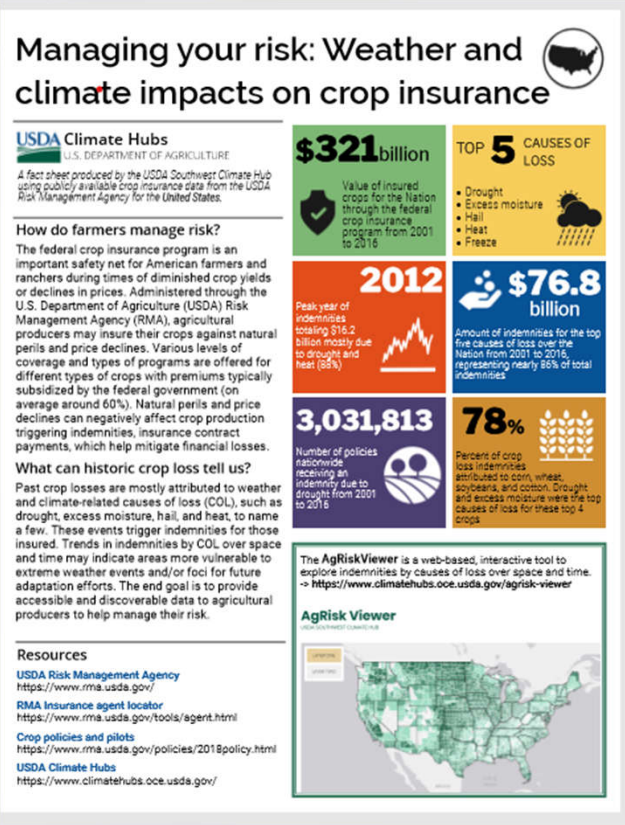


For livestock producers, Extension, NRCS and other range managers

Combines current weather data and season climate outlook with grassland modeling to predict forage conditions

Grass cast can help inform drought management plans, stocking dates, livestock purchases, etc.

AG Risk viewer



Managing your risk: Weather and climate impacts on crop insurance

USDA Climate Hubs
U.S. DEPARTMENT OF AGRICULTURE

A fact sheet produced by the USDA Southwest Climate Hub using publicly available crop insurance data from the USDA Risk Management Agency for the United States.

How do farmers manage risk?

The federal crop insurance program is an important safety net for American farmers and ranchers during times of diminished crop yields or declines in prices. Administered through the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA), agricultural producers may insure their crops against natural perils and price declines. Various levels of coverage and types of programs are offered for different types of crops with premiums typically subsidized by the federal government (on average around 60%). Natural perils and price declines can negatively affect crop production triggering indemnities, insurance contract payments, which help mitigate financial losses.

What can historic crop loss tell us?

Past crop losses are mostly attributed to weather and climate-related causes of loss (COL), such as drought, excess moisture, hail, and heat, to name a few. These events trigger indemnities for those insured. Trends in indemnities by COL over space and time may indicate areas more vulnerable to extreme weather events and/or foci for future adaptation efforts. The end goal is to provide accessible and discoverable data to agricultural producers to help manage their risk.

Resources

USDA Risk Management Agency
https://www.rma.usda.gov/

RMA Insurance agent locator
https://www.rma.usda.gov/tools/agent.html

Crop policies and pilots
https://www.rma.usda.gov/policies/2018policy.html

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

$321billion
Value of insured crops for the Nation through the federal crop insurance program from 2001 to 2016

TOP 5 CAUSES OF LOSS
- Drought
- Excess moisture
- Hail
- Heat
- Freeze

2012
Peak year of indemnities totaling $16.2 billion mostly due to drought and heat (88%)

$76.8 billion
Amount of indemnities for the top five causes of loss over the Nation from 2001 to 2016, representing nearly 86% of total indemnities

3,031,813
Number of policies nationwide receiving an indemnity due to drought from 2001 to 2016

78%
Percent of crop loss indemnities attributed to corn, wheat, soybeans, and cotton. Drought and excess moisture were the top causes of loss for these top 4 crops

The **AgRiskViewer** is a web-based, interactive tool to explore indemnities by causes of loss over space and time.
-> **https://www.climatehubs.oce.usda.gov/agrisk-viewer**

AgRisk Viewer

Web based interactive tool to examine indemnities by cause of crop loss in specific areas over time

Shows historic losses from causes such as hail, drought, excess moisture, etc.

Can help agriculture producers make decisions to help manage risk

Can help agribusiness such as lenders and crop consultants

Adaptation workbook

Provides producers with a flexible process to consider climate change information and design customized management actions

Can help NRCS and partnership personnel incorporate information on the changing climate into conservation planning

Helps farmers and ranchers plan for the changing climate

Wildfire outreach

Wildfire dangers are increasing with climate change

Partnered with state conservation agencies, NRCS, local districts on others on fire focus group in 2017

Led to wildfire fire forum in Oklahoma panhandle

Follow up prescribed fire forums to encourage prescribed fire as a wildfire prevention tool

Conservation Technical assistance and conservation planning are two of the Most important tools we have to help address the problems created by the Changing climate.

Districts can be a key partner in helping producers get ready for the future

Conservation technical assistance is used to……

- **Reduce soil loss from erosion**
- **Solve soil, water quality, water conservation, air quality, and agricultural waste management problems**
- **Reduce potential damage caused by excess water and sedimentation or drought**
- **Enhance the quality of fish and wildlife habitat**
- **Improve the long term sustainability of all lands, including cropland, forestland, grazing lands, coastal lands, and developed and/or developing lands**
- **Assist others in facilitating changes in land use as needed for natural resource protection and sustainability**

What impact will climate change have on agriculture?

- **Increased exposure to heavy rain events resulting in increased run-off and erosion**
- **Extended droughts placing stress on crop and livestock production**
- **Increased impacts on wildlife habitat resulting in increased regulatory pressure on agriculture**
- **Increased possibility for late season freezes, variable weather patterns, etc.**
- **THESE ARE THE THINGS WE NEED TO BE CONSIDERING IN CONSERVATION PLANNING**

You know how to meet the producers where they are

Not everyone believes in climate change, but……

- They believe in droughts

Not everyone believes in climate change but……..

- They believe in floods

WE HAVE BEEN THIS WAY BEFORE

- *"From every conceivable angle—economic, social, cultural, public health, national defense—conservation of natural resources is an objective on which all should agree."*

- *"Many farmers—most farmers, and that means millions—need some technical help in making the change to this more efficient, easier, and more productive type of farming, and they need also moral support and encouragement."*

This is our charge. This is our challenge.

- USDA CLIMATE HUBS:
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