

USDA's Southern Plains Climate Hub: Partnerships for Resilient Agriculture

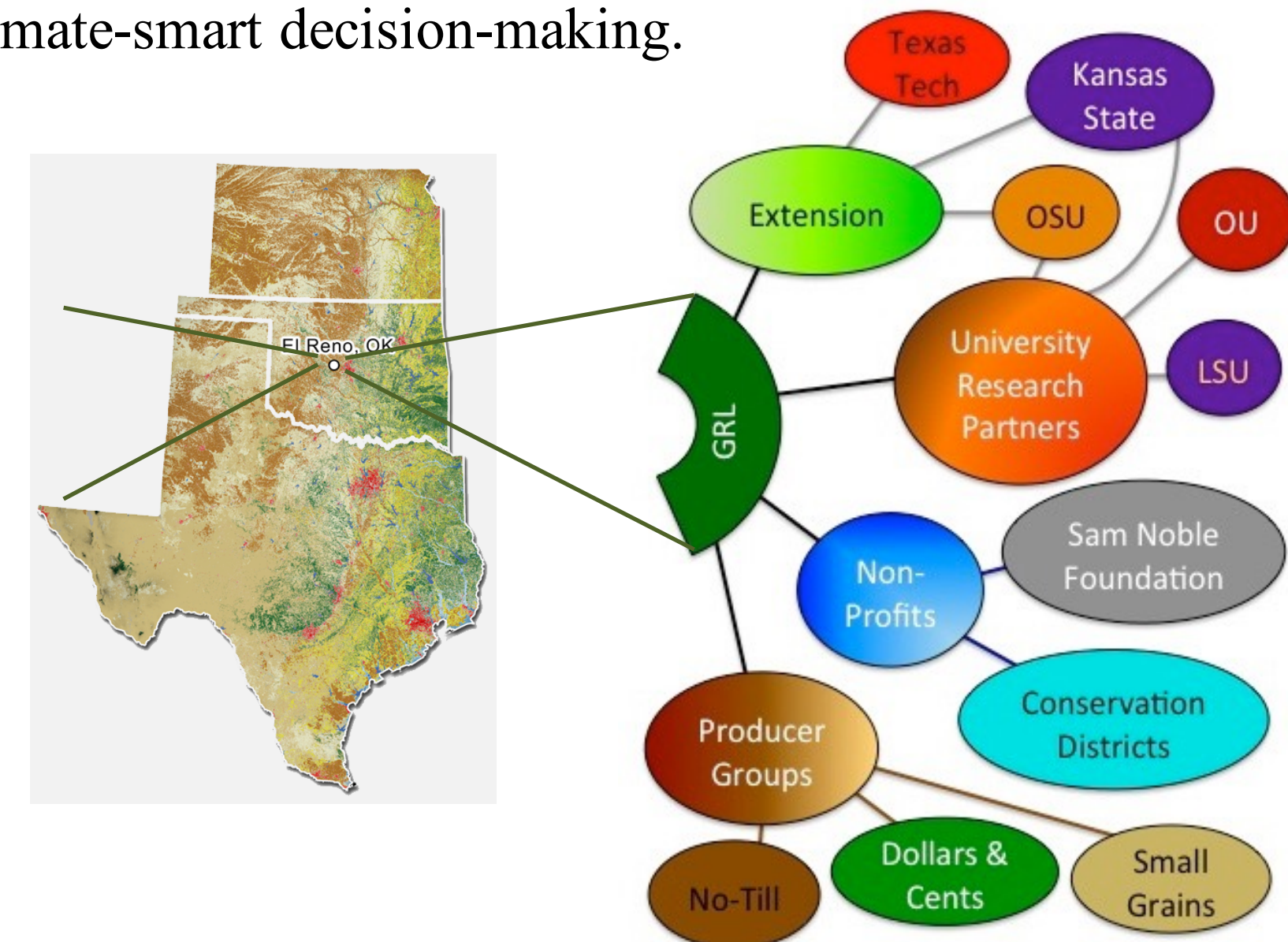
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Abstract

In the Southern Great Plains of the United States, extremes of weather and climate are the norm. Farmers, ranchers, and foresters rely upon timely and authoritative data and information when making management decisions that are weather- and climate-dependent. In response to the needs of these agricultural stakeholders, USDA established the Southern Plains Climate Hub, part of a national network of ten Hubs whose mission is to synthesize and translate weather and climate science into regionally usable tools and information. The Southern Plains Climate Hub works across Texas, Oklahoma, and Kansas to facilitate critical research, conduct user needs and vulnerability assessments, communicate weather and climate information to stakeholders, promote educational opportunities, and build regional partnerships within and beyond USDA. Specific examples of recent Southern Plains Climate Hub successes are highlighted here, along with upcoming initiatives within and beyond the Hub network that will broadly connect weather and climate information to regional agricultural management.

Mission

The Southern Plains Climate Hub develops and delivers regional, science-based information for partners and producers in Kansas, Oklahoma, and Texas that enables climate-smart decision-making.

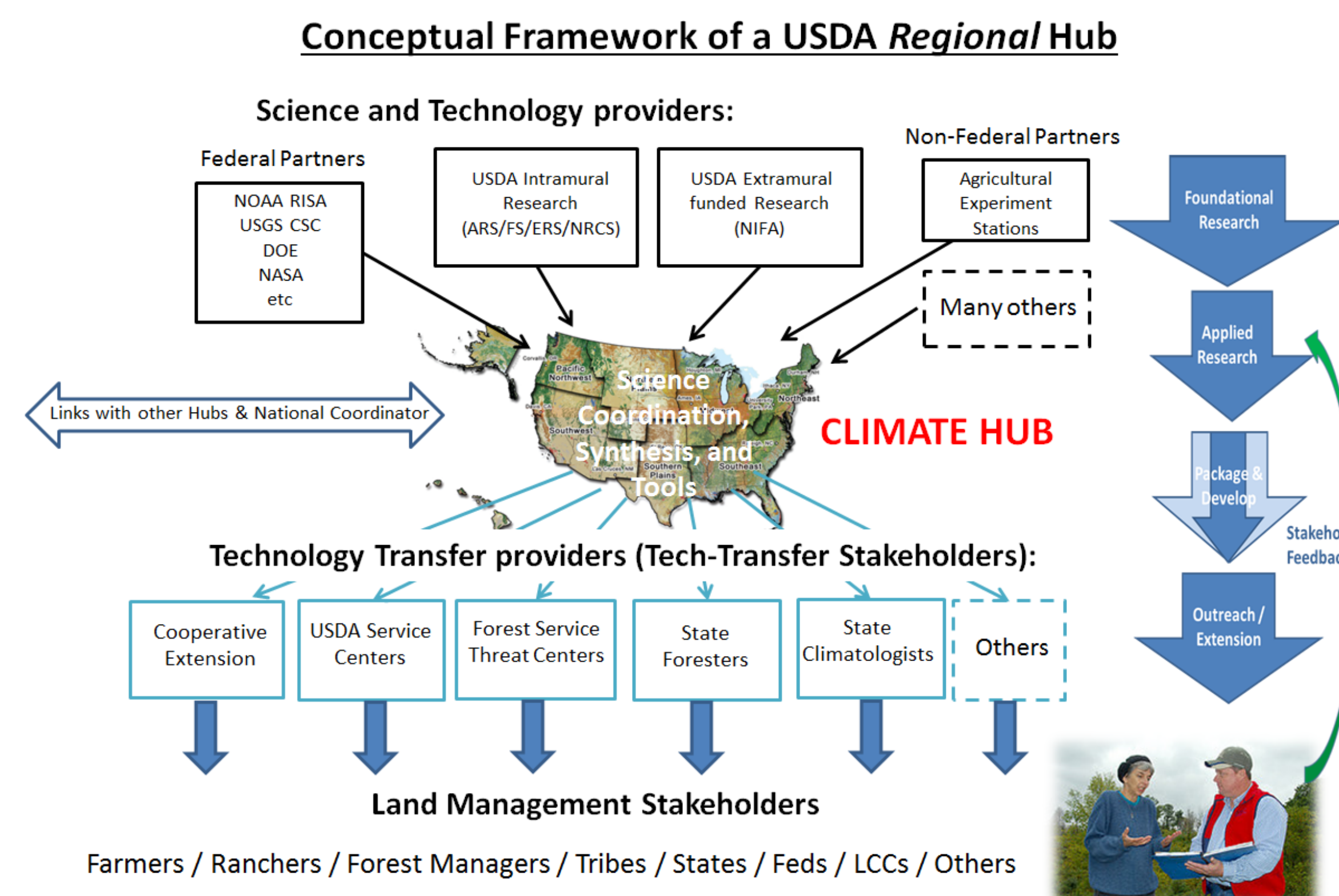


Commodity	Kansas	Oklahoma	Texas	Southern Plains
	Billions			
Crops	6.984	1.876	7.367	16.227
Wheat	2.474	0.946	0.618	4.038
Corn	2.297	0.203	1.454	3.954
Horticultural ¹	0.093	0.268	1.738	2.101
Cotton		0.052	1.619	1.671
Hay	0.359	0.271	0.958	1.588
Sorghum	0.579	0.034	0.743	1.356
Soybean	1.102	0.048	0.037	1.187
Livestock	11.477	5.254	18.009	34.740
Beef cattle	10.153	3.403	13.013	26.569
Poultry, eggs	0.088	0.961	2.325	3.374
Dairy	0.482	0.164	1.698	2.344
Swine	0.697	0.656	0.239	1.592
Total Agriculture	18.461	7.130	25.376	59.966

Production value of major crop and livestock commodities in the Southern Plains. (NASS 2014)

What We Do

- Assess the impacts of climate extremes and changes on agricultural systems
- Understand the climate-related information needs of producers and professionals
- Synthesize and translate climate science and research into useable tools and products
- Demonstrate climate-smart adaptation strategies, techniques, and management practices
- Build partnerships among federal, state, Tribal, NGO, and private sector organizations
- Educate and communicate to regional audiences about climate-related risks and resources



Implementation Timeline

- 2013: initial internal proposal prepared
- 2014: award made to ARS GRL to host SP Hub
 - Interim director and NRCS co-lead
 - Interim steering committee
- 2015: transition period
 - Acting director and new NRCS co-lead
- 2016: ARS investment in permanent staffing
 - New director and postdoctoral fellow
 - New USFS and NRCS co-leads
 - Reconstitution of steering committee (ongoing)

Initial Partnerships and Priorities

- Coordination via CSP LLC and Redlands C.C.
 - Introduce Hub and solicit regional feedback
- Engagement with academic and Tribal partners
 - e.g., Kansas State, Cheyenne-Arapaho
- Responding to USDA priorities
 - Southern Plains vulnerability assessment
 - Leveraging USDA investments (e.g., CAPs, LTARs)

Recent Accomplishments: 2016

- Linked climate research, tools, and information together for scientists and producers**
 - Released Southern Plains Vulnerability Assessment
 - Engaged 160+ participants at soil health/cover crop field days
 - Convened North American drought, fire, climate services forum
- Strengthened capacity to deliver climate-smart information**
 - Conducted four regional workshops in support of USDA Building Blocks for Climate-Smart Agriculture initiative
 - Trained regional NRCS and Extension staff
 - Engaged National Agroforestry Center on Great Plains agroforestry priorities and development of Building Block
- Targeted outreach to diverse and underrepresented audiences**
 - Reached agreement to establish soil health demonstration farm with the Cheyenne and Arapaho Nation
 - Presented to NRCS National Hispanic Employees Association and Mexico's Secretariat of Agriculture (SAGARPA)
 - Published Spanish-language Vulnerability Assessment
- Built partnerships with climate science and service providers**
 - Established cooperative agreements with the National Drought Mitigation Center and Texas A&M University AgriLife
 - Convened climate change and soil health messaging focus group with the National Association of Conservation Districts
 - Presented to GreenLeaders DC on soil health management
- Worked with educators and communicators**
 - Funded graduate theses and climate curriculum module development for Extension agents at Kansas State University
 - Reached agreement through Redlands Community College to develop an Oklahoma climate change and soil health curriculum supplement for statewide use
 - Presented to groups such as the National Society of Environmental Journalists and to over 100 students and faculty at Texas Tech University



Producers at cover crop field day, El Reno OK, June 2016



2.5-mile wide tornado, El Reno OK, May 2013

Current and Future Priorities: 2017 - beyond

- Technology Transfer**
 - Conduct regional weather and climate outlook and agricultural impact workshops
 - Expand the coverage of regionally-relevant climate tools, products, and information
 - Continue engaging producers via field days in Kansas and Texas
 - Initiate weather and climate monitoring activities on Tribal lands
 - Strengthen links between the Hub and Agency initiatives such as CAPs and LTARs
 - Partner on grants and proposals that advance Hub, ARS, and Agency priorities
- Assessments and Partnerships**
 - Convene a Southern Plains climate and agriculture research priorities conference
 - Undertake agroforestry data assessment activities for USDA Building Blocks
 - Strengthen the Hub's connection to the DOI South Central Climate Science Center
 - Publish a peer-reviewed version of the Southern Plains Vulnerability Assessment
 - Convene Southern Plains climate services practitioners workshop
- Communication and Education**
 - Develop and disseminate climate curriculum modules for Extension agents
 - Conduct NRCS climate change and soil health education workshops
 - Implement Hub website redesign and expand use of social media
 - Develop Oklahoma climate change and soil health curricula
 - Update NRCS conservation communication strategies
 - Deliver regionally-relevant climate information to diverse agricultural audiences

Lessons Learned

- Weather and climate extremes can be a gateway to deliver regional services and advance stakeholder engagement
- Be user-driven and user-focused
- Utilize trusted resources and information brokers
- Build synergies with regional services partners
- Be flexible and responsive to emerging opportunities