



United States Department of Agriculture
Natural Resources Conservation Service

The Drought and NRCS's Water Efficiency Improvement Activities

Rob Sampson
National Water Management Engineer, NRCS

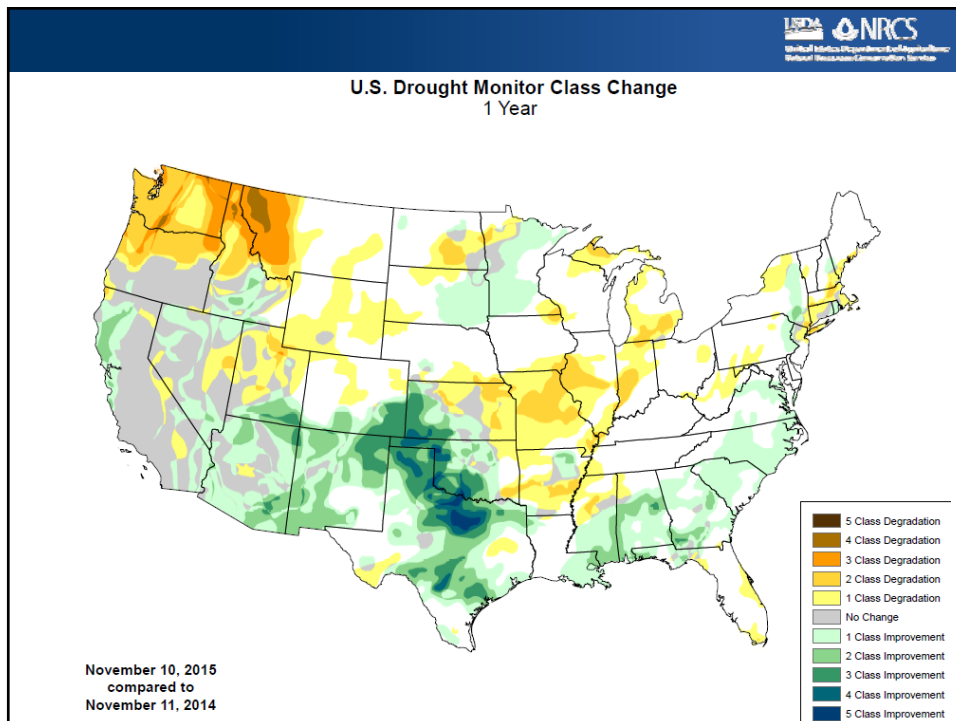
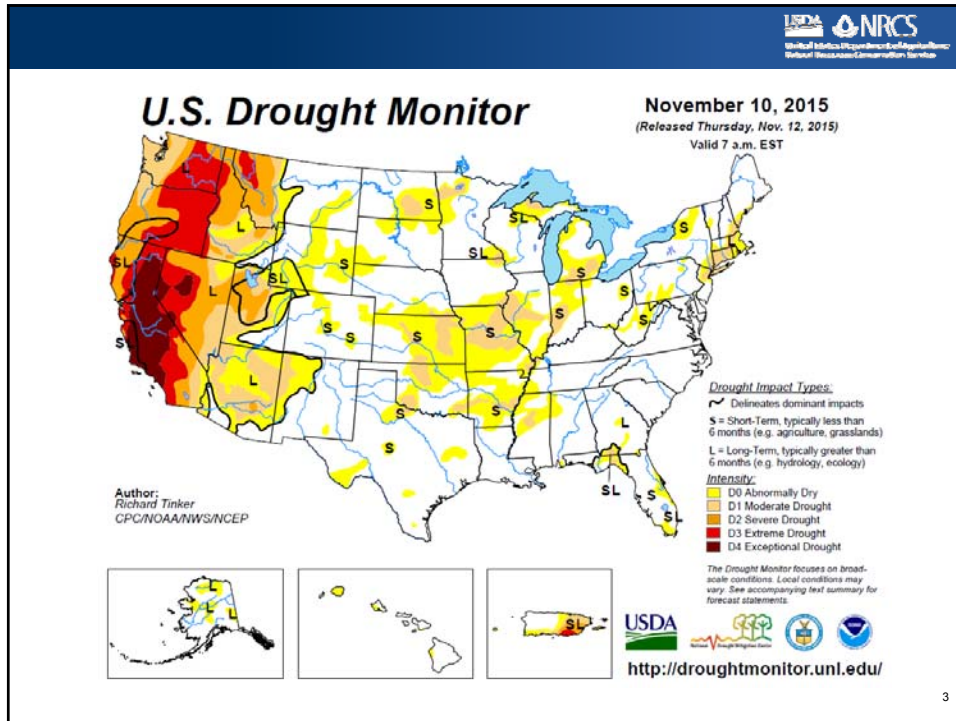
USDA - Natural Resources Conservation Service



NRCS provides technical assistance on private lands to farmers, ranchers, Indian Tribes and local governments.



NRCS has offices in most counties to deliver National conservation programs. NRCS works with locally elected Soil and Water Conservation Districts to set conservation priorities.



RCH

The New York Times

NRCS
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SundayReview | NEWS ANALYSIS

How the West Overcounts Its Water Supplies

By ABRAHM LUSTGARTEN JULY 17, 2015



The Colorado River in Mojave Valley, Ariz. Ronda Churchill for The New York Times

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How to manage drought: Ask an economist

Posted on June 23, 2015 by UC Davis Center for Watershed Sciences



- **Get inside consumers' heads (Schawbe)**
- **Increase role of water markets (Jessoe)**
- **Tiered water pricing works – and it's legal (Baerenklau)**
- **Keep closer tabs on crop water use (Medellín-Azuara)**
- **Monitor and manage our groundwater (MacEwan)**

Rich Californians balk at limits: 'We're not all equal when it comes to water'



By Rob Kuznia June 13



People "should not be forced to live on property with brown lawns, golf on brown courses or apologize for wanting their gardens to be beautiful," Yuhas fumed recently on social media. "We pay significant property taxes based on where we live," he added in an interview. "And, no, we're not all equal when it comes to water."

Riley, a Labrador Retriever, plays in a pool at a residence in Rancho Santa Fe, California. (Sandy Huffaker/The Washington Post)

White House Focuses on Drought and Wildfire Threats



Funding for water and land management, crop insurance relief, and jobs aims to lessen drought impacts and improve protection from wildfires.

Credit: [Don DeBold, CC BY 2.0](#)
By [RANDY SHOWSTACK](#) 18 June 2015



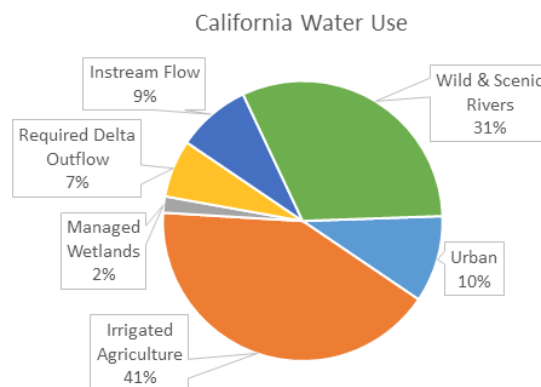
Everything I thought I knew about water in California is wrong

By [Nathanael Johnson](#) on 20 Apr 2015

Urban dwellers (reasonably) thought, *I don't want to be a dupe and scrimp and save if agriculture isn't doing the same.* So why didn't California also demand that ag cut back? It actually did, said Doug Parker, director of the [University of California Institute of Water Resources](#). Brown just didn't talk about that when he made [his big announcement](#) (he's probably kicking himself about that). Growers that rely on the [State Water Project](#) are taking [an 80 percent cut from their normal water share](#).

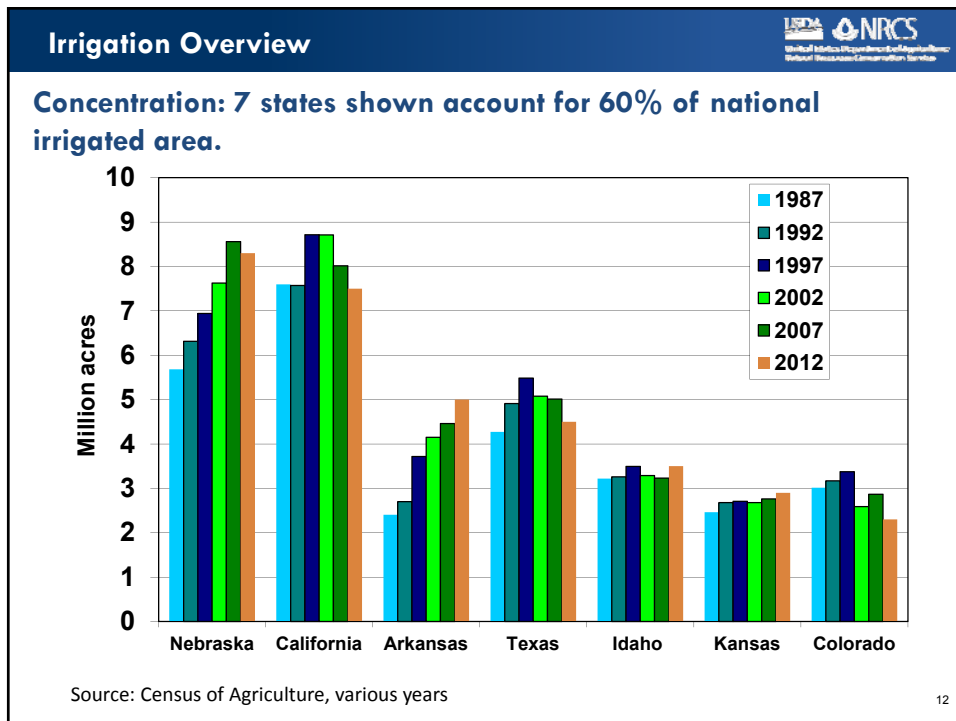
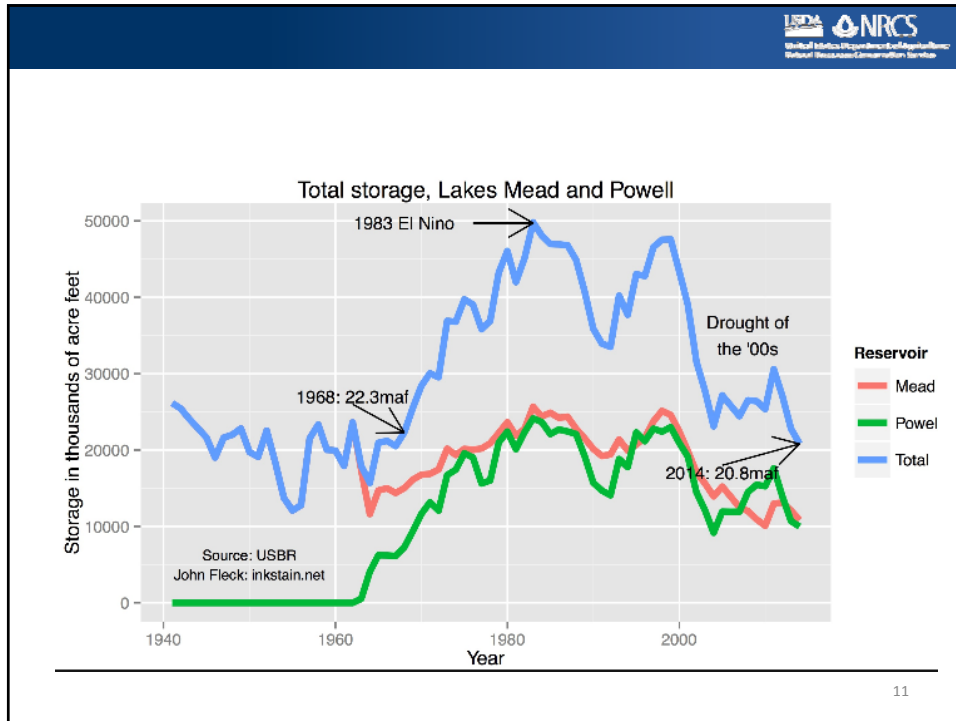
Agriculture uses 80 percent of California's water: Not the whole picture

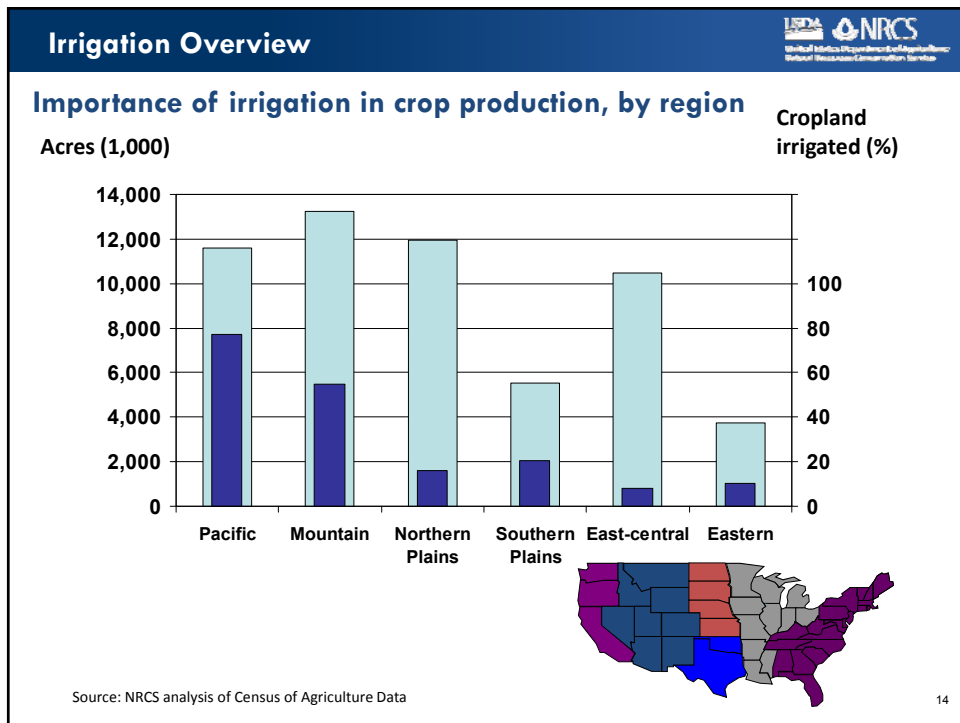
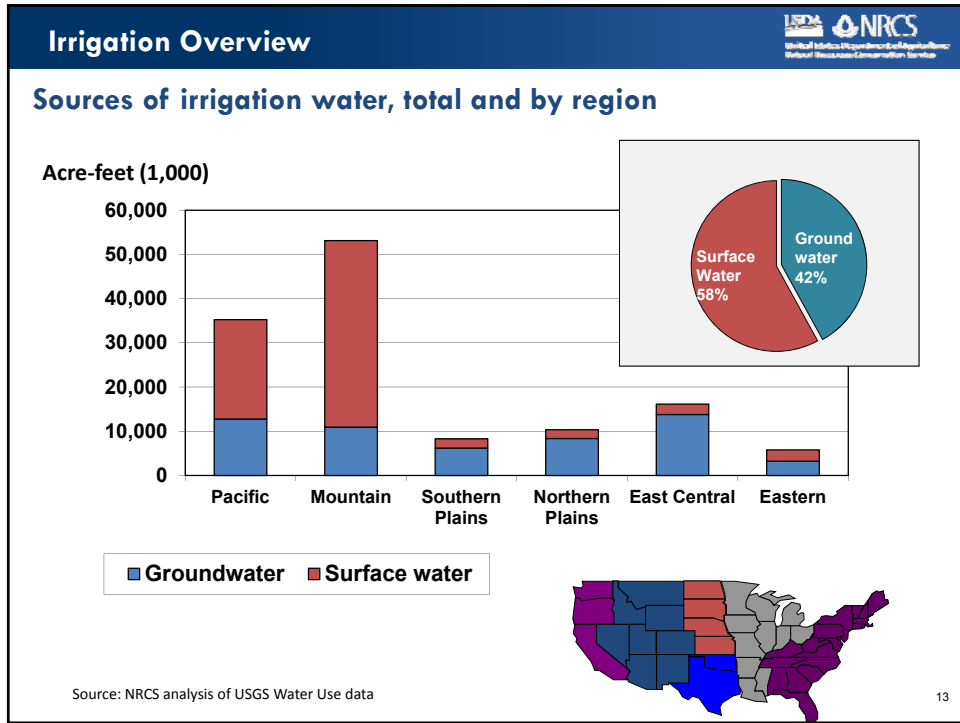
This isn't exactly wrong, but it's useful to understand the nuance. Here's how water is divvied up in California:

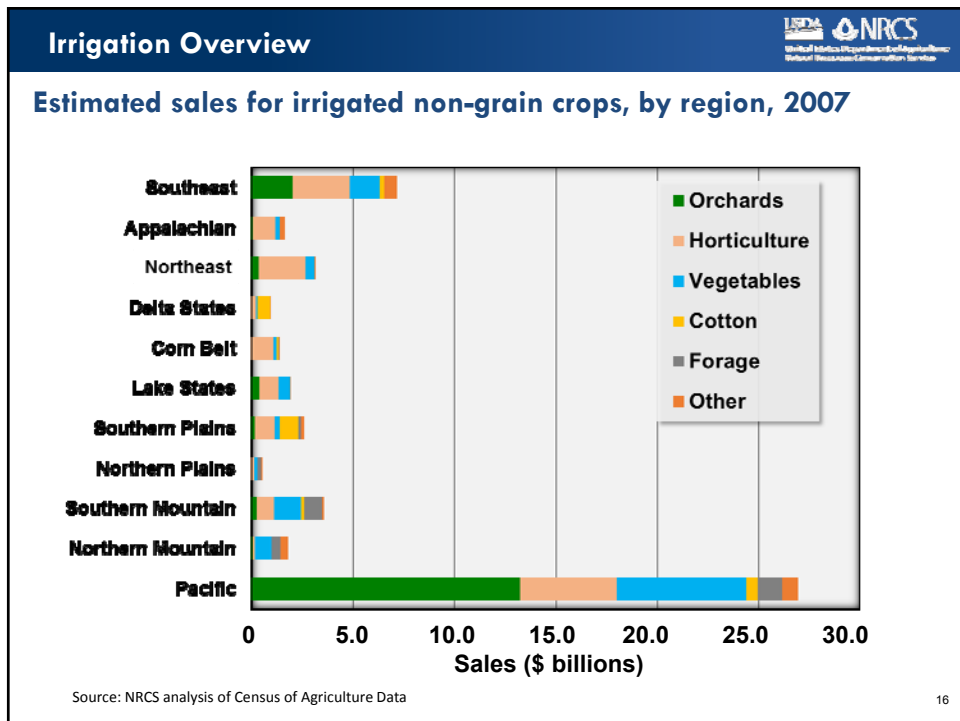
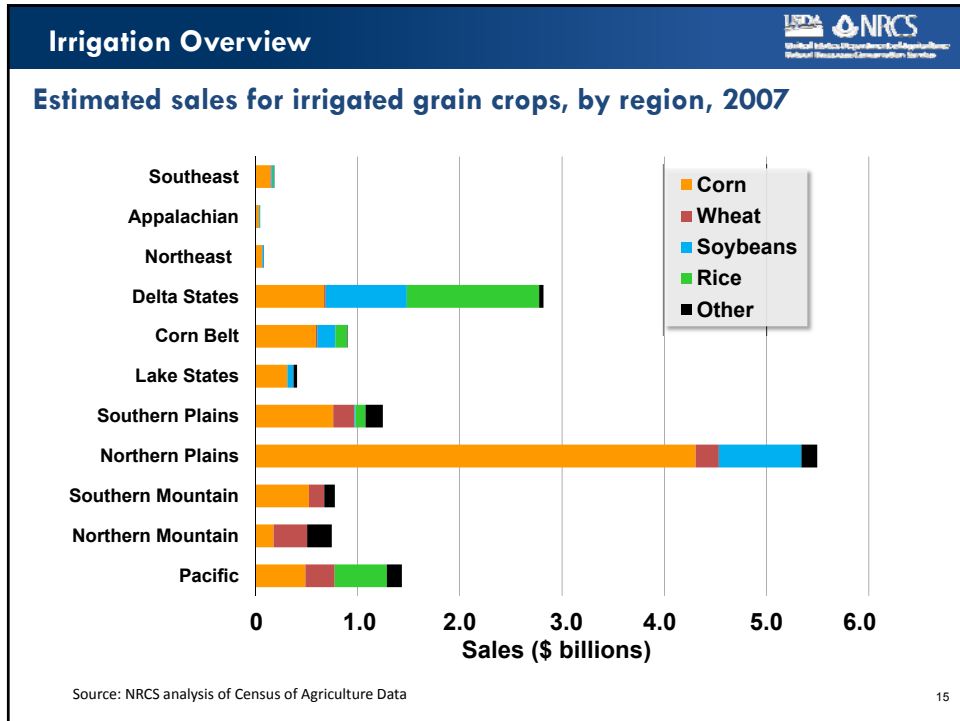


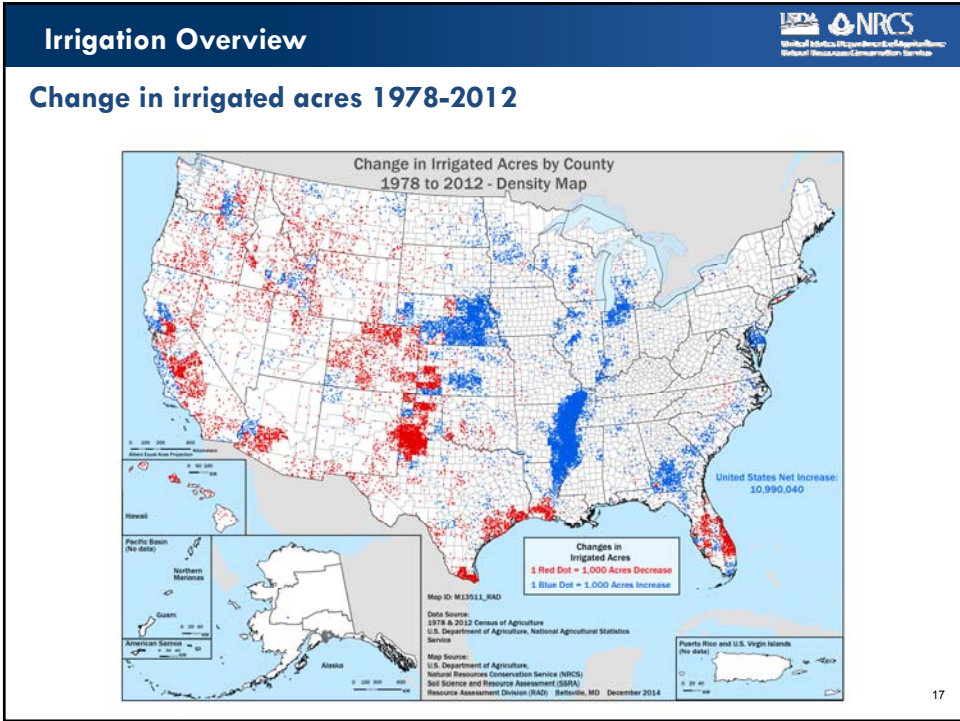
Northern California Water Association

You do get farmers using 80 percent of water and cities using 20 percent if you don't count the other pieces of the pie. But those pieces are important, and by no

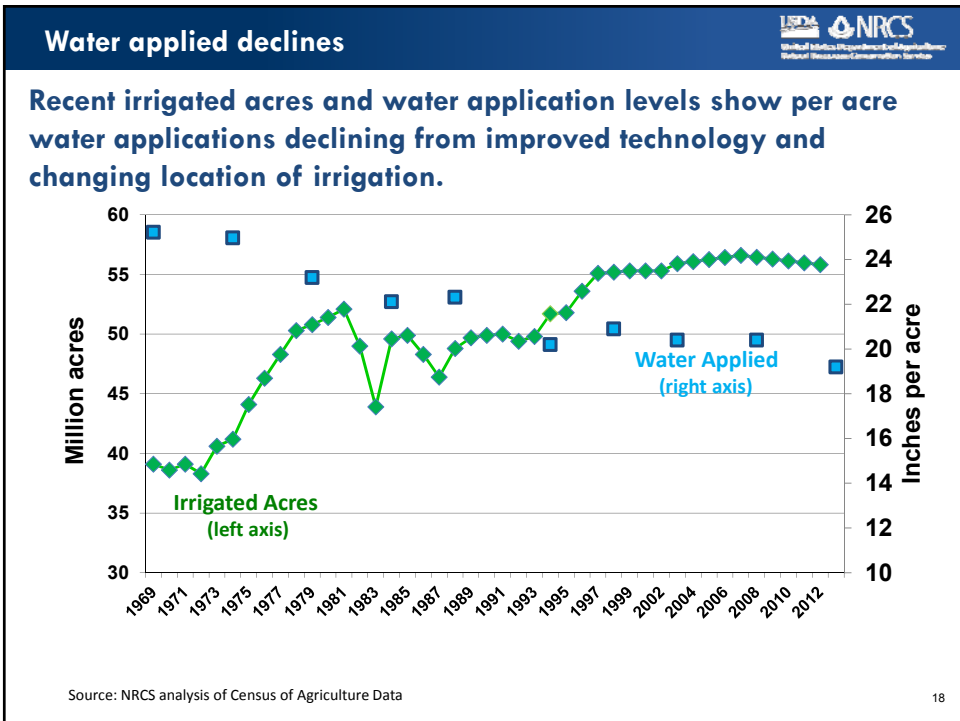








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NRCS Irrigation Activities – Water Application Systems

USDA NRCS
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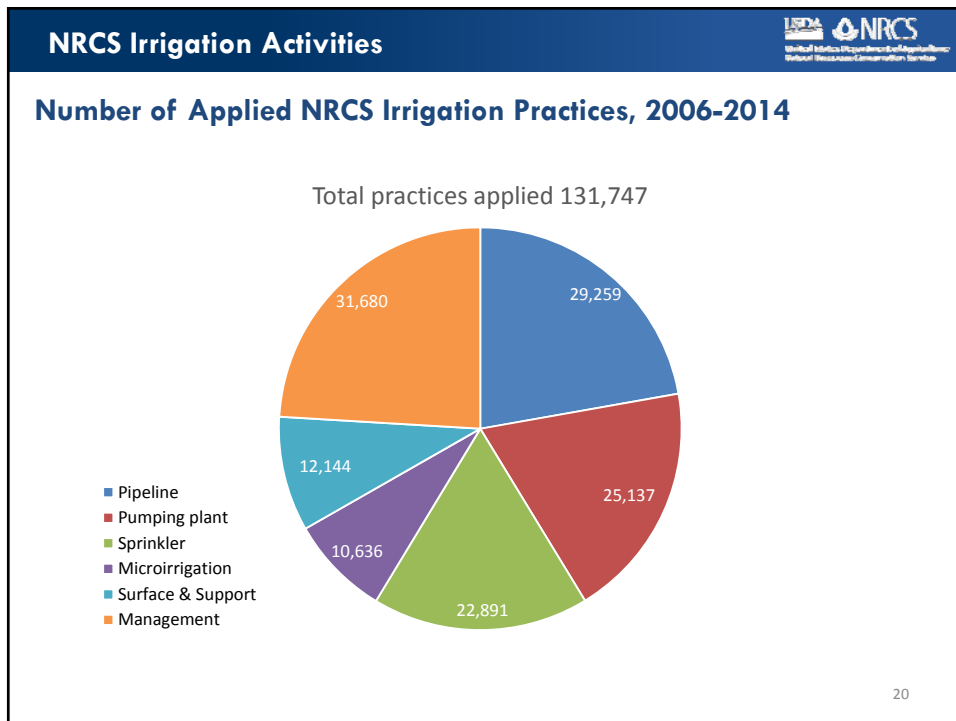
Surface Irrigation

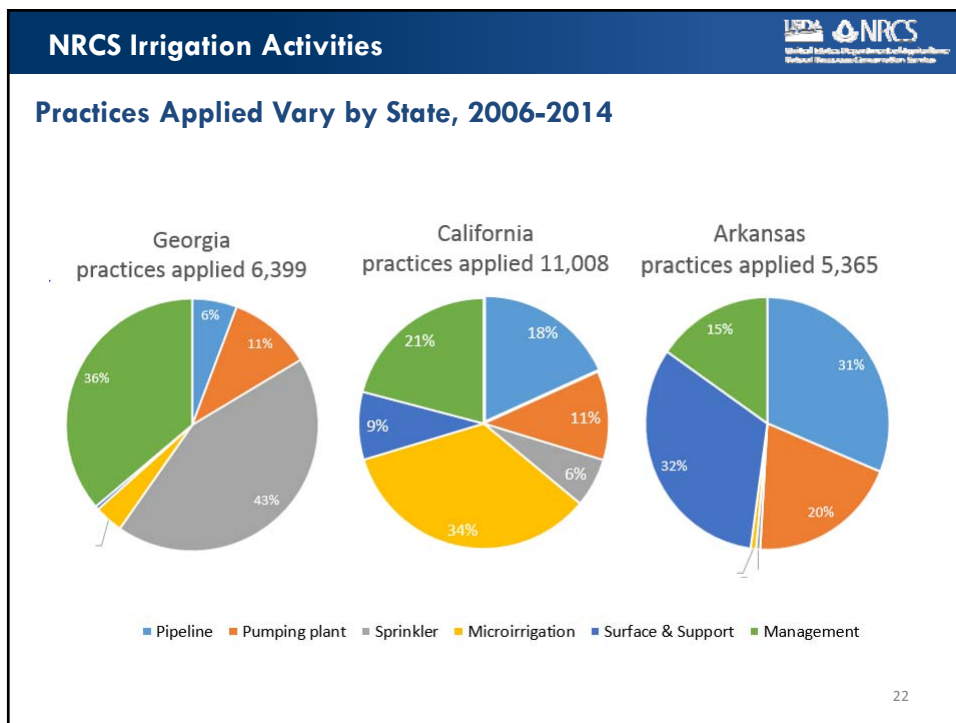
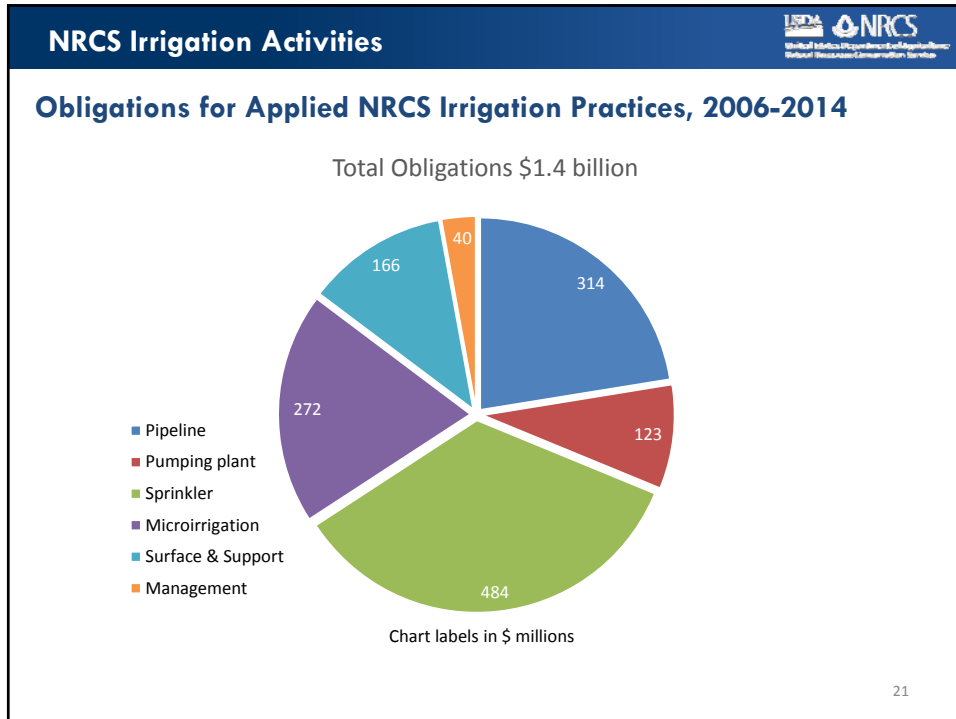


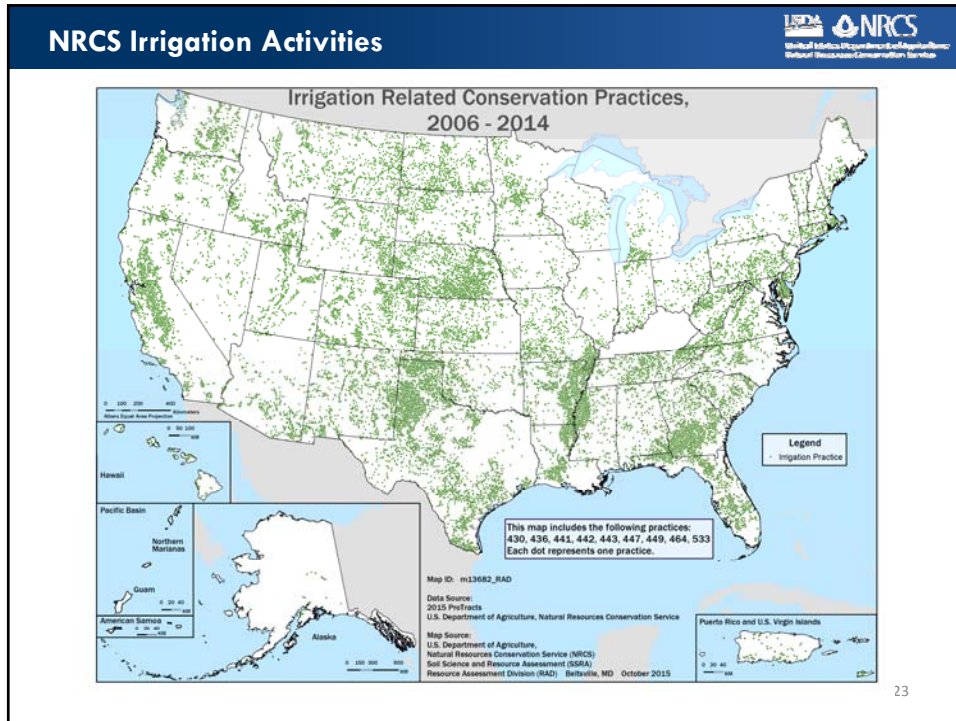
Sprinkler Irrigation



Micro Irrigation





NRCS Irrigation Activities

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Irrigation Water Management

NRCS requires water management to be included with all irrigation design, planning and payment activities.

NRCS Water Management Activities

NRCS has a suite of Water Management Activities beyond Irrigation: Drainage Water Management, Water Table Management, And a Range of Water Quality Improvement Practices.



Denitrifying Bioreactor removes N from drainage water



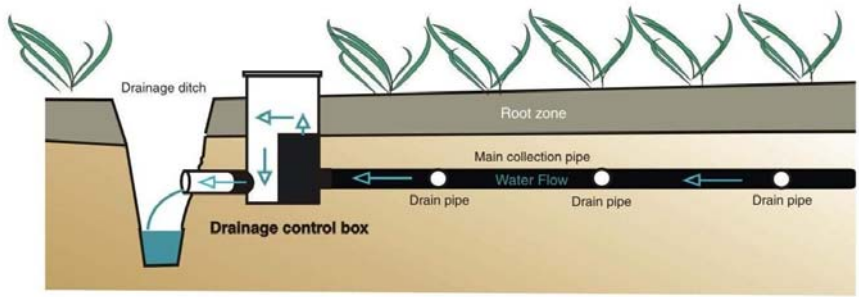
Drainage Water Management structure



Water Table Control



Drainage Water Management and water reuse 'subsurface'



Drainage ditch

Root zone

Main collection pipe

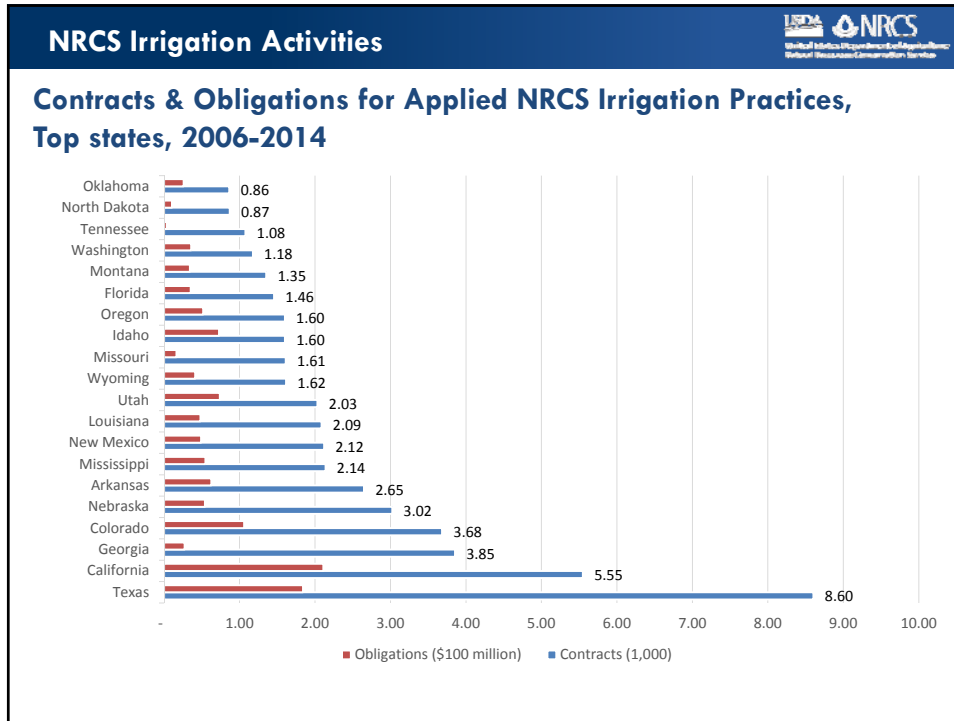
Water Flow

Drain pipe

Drain pipe

Drain pipe

Drainage control box



The New York Times


Energy & Environment

THE PARCHED WEST

California Farmers Dig Deeper for Water, Sipping Their Neighbors Dry

The new drill that Mr. Hundal ordered from Texas should be up and running in a few weeks. He says it can push 2,500 feet into the ground, tapping new aquifers and making way for wells that can produce thousands of gallons of water a minute. He plans to drill at least six new wells on his various farms across the Central Valley: Four of them are in Tulare, and two are on property 100 miles north.

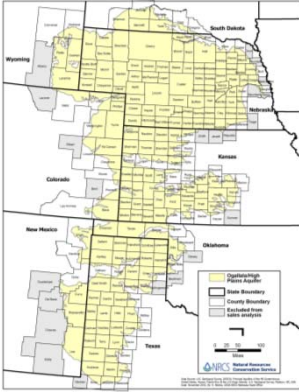
"It's about survival," he said. "Everybody is pulling water out of the ground."




NRCS Landscape Initiatives – Ogallala Aquifer Area

Estimated water application reductions, 2008-2012

- Practices to reduce water applications totaled 1.5 maf
- Practices to reduce water applications and pressure reduced energy use by 33 mgde
- Ogallala is a fossil water aquifer with limited recharge all water extraction uses energy
- About 60% of reduced withdrawals from practices that convert from irrigation
- About 40% of reduced withdrawals from improved management & technology



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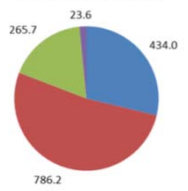


NRCS Landscape Initiatives – Ogallala Aquifer Area

Estimated water application reductions, 2008-2012

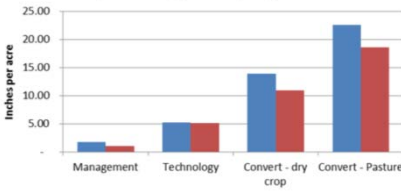
- The water application reduction converted to about 2% of total withdrawals
- When valued at 2007 crop sales levels the 1.5 maf converts to \$140 million
- Reduced energy use of 33 mgde was not valued (at \$3 per gallon diesel, \$99 million)

a. Reduced water withdrawals by program, 1,510 taf



Program	Value (taf)
Ogallala Aquifer Initiative	786.2
General EQIP	434.0
AWEP	265.7
Other Programs	23.6

f. Per acre reduced water withdrawals by practice type and program



Practice Type	Ogallala Aquifer Initiative (inches per acre)	General EQIP & Other Programs (inches per acre)
Management	~2.0	~1.0
Technology	~5.0	~4.0
Convert - dry crop	~14.0	~10.0
Convert - Pasture crop	~22.0	~18.0



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NRCS Landscape Initiatives – Ogallala Aquifer Area

Targeting the Ogallala Aquifer Initiative

NRCS targeted funds from the Ogallala Aquifer Initiative to provide meaningful local impact of water application reductions. States chose different approaches.

For example:
 Nebraska targeted on regions
 Oklahoma targeted near towns in the Panhandle

Legend



- County Boundaries
- Ogallala Aquifer
- Ogallala Focal Area

Source: Ogallala Aquifer Initiative (Ogallala Initiative) funded by the U.S. Department of Agriculture, National Resources Conservation Service (NRCS). The map displays the Ogallala Aquifer Initiative (Ogallala Initiative) project areas in Nebraska and Oklahoma. The map is intended for informational purposes only and does not constitute a contract or offer of any service. © 2015 NRCS.


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NRCS Irrigation Practices

Low Energy Precision Application (LEPA) irrigation.

Subsurface drip irrigation combined with precision farming.





A good example is Tehama County (CA) rancher Sam Williams, who participated in a Farm Bill project in the Anderson Cottonwood Irrigation District (ACID) in 2010. Williams is using 37 percent less irrigation water, due to improved water use efficiency, and his fields have stayed lush and green despite 25 percent water curtailments in 2014 and again this year. Williams says that he has hardly been affected by the drought.

“It’s saving a lot of water,” said Williams. “The new system is much more efficient. It used to take me four days to irrigate everything. Now ... I can do it in 24 hours.

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ca/newsroom/releases/?cid=NRCSEPRD397606>

NRCS Irrigation Practices



Case Studies – Marysville Gravity Pressurized Mainline, Idaho





54 inch diameter pipeline, replaces an extensive ditch system. Allows removal of pumps, and delivers water only when needed.

Over 100 cubic feet per second *not* diverted – Remains in storage for:
 river flow,
 power generation,
 longer irrigation season,
 more crop production.



NRCS Irrigation Practices

Case Studies – Marysville Gravity Pressurized Mainline, Idaho

Marysville / Farmers Own

	Project		Project	
Length	188,900	feet	57,591	meters
Flow	211.5	cfs	6.0	m ³ /s
Low Cost	\$ 22,200,000			
High Cost	\$ 27,700,000			
Outlets	108	each		
Acres	12,460	approx acres	5,040	hectares
Horsepower	4212	approx hp	3,140	kW
Low \$/acre	\$ 1,800			

Administration Response

Administration Response



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Administration Response


United States Department of Agriculture

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Resources

- [DisasterAssistance.gov](#)
- [Drought.gov](#)
- [Economic Research Service: California Drought - Farm and Food Impacts](#)
- [Emergency Preparedness and Response](#)
- [Forest Service and Wildfires](#)
- [National Drought Mitigation Center](#)

Disaster and Drought Information

The United States Department of Agriculture is working with producers, communities, affected states and other agencies to help address the current west-coast drought. Information on this page outlines programs and services available through USDA, coordinated with the seven agencies of the National Drought Resilience Partnership. USDA encourages affected producers to document their losses and to work closely with staff in their local USDA Service Centers.

Additional resources are available on the [California Department of Food and Agriculture Drought website](#).

2015 Drought Disaster Updates



Disaster Fast Track Map Updated 11/10/15


Drought Disaster Designations Map (PDF, 5.6MB)

[Text-only \(accessible\) version](#)

Map shows designations due to drought across the country under USDA's amended rule. Any county declared a primary (red) or contiguous (orange) disaster county makes producers in that county eligible for certain emergency aid.

[List of Designated Drought Disaster Counties \(PDF, 407KB\)](#)

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Administration Response

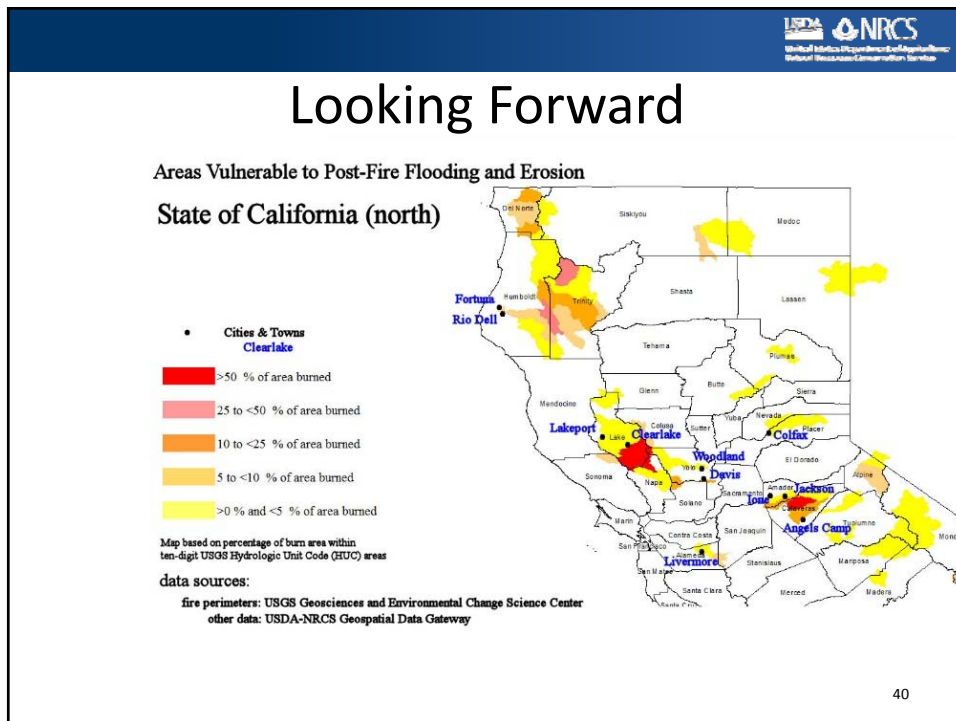
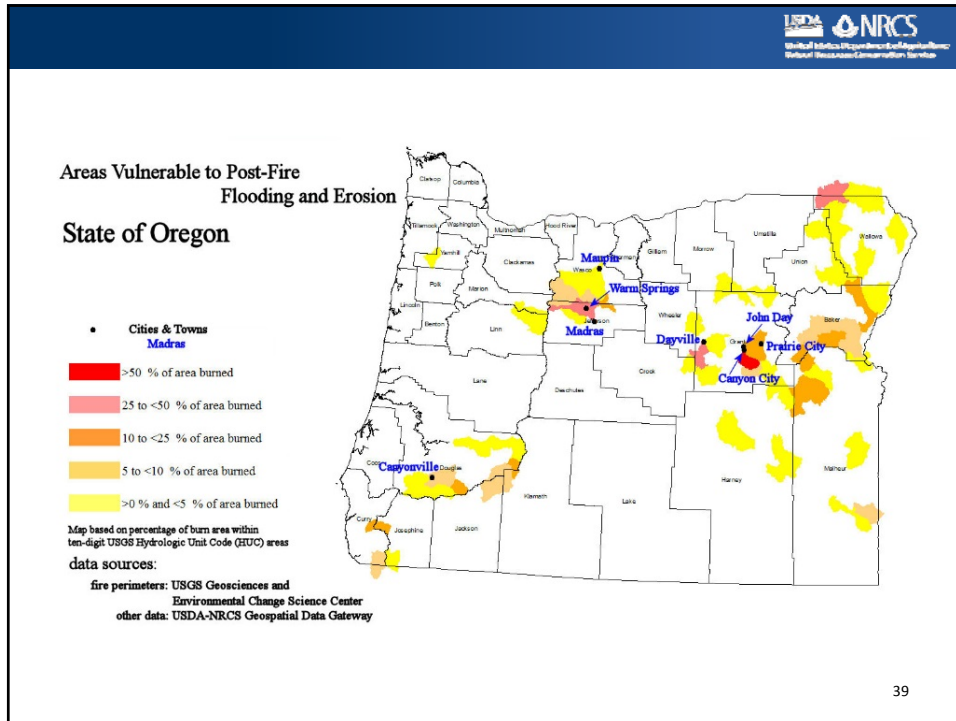
Agriculture Secretary Vilsack announces \$150 million, new partnership to support water quality and quantity in drought-stricken California [Email This Page](#)

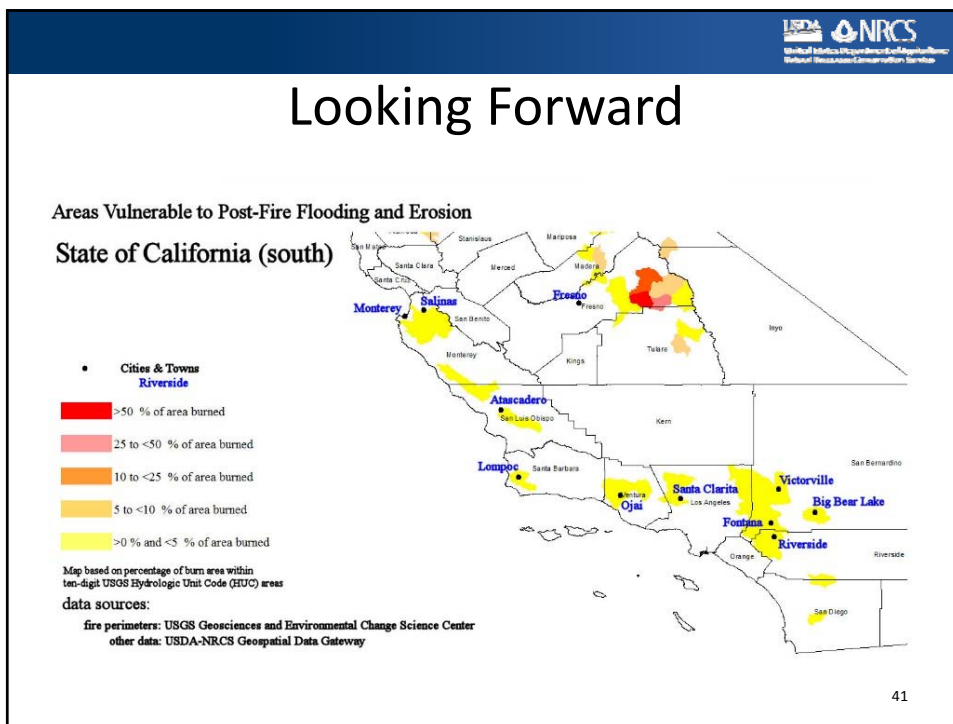
Contact:
USDA Office of Communications (202)720-4623

Resilient Lands and Waters partnership will focus public and private resources towards conserving and restoring the Sierra-Cascade California Headwaters

SUNOL, Calif., June 24, 2015 — Agriculture Secretary Tom Vilsack today joined Interior Deputy Secretary Mike Connor and California Secretary for Natural Resources John Laird to announce a new partnership focused on

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- Summary**
- Droughts and highly variable weather patterns may be the normal climate.
 - Urban dwellers and irrigators alike will need to be more flexible and resilient.
 - USDA will continue to provide technical assistance, on the farm.
 - NRCS will continue to target funding and technical specialists where the need is the greatest.
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Thank you!



Rob Sampson
NRCS National Water
Management Engineer



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