

# Agweather Connection

<http://agweather.mesonet.org/>

Volume 1, Issue 3, Dec 06

## Drought severe in NW Oklahoma

By Albert Sutherland and Ken Crawford

When soil moisture is low and no rain comes, crops fail. The year of 2006 started with dry soils. Then, critically-needed rain never materialized and drought conditions intensified.

Wheat growers saw the poorest wheat crop in fifty years. No summer pasture grew for livestock grazing. Virtually no hay was produced for winter-feeding. Mark Hodges, Executive Director for the Oklahoma Wheat Commission, estimates the 2006 loss in agricultural production at more than \$500 million dollars.

While the southern two-thirds of Oklahoma received some drought relief from rains in mid-October and early November, the northern one-third of Oklahoma remains in a severe drought. In the Oklahoma Farm Report, Ron Hays noted that, "soils in

northwest Oklahoma have the consistency of flour."

The severity of the drought in northwest Oklahoma can be seen by viewing soil moisture products from Agweather, a product of the Oklahoma Mesonet.

The Oklahoma Mesonet is a partnership between Oklahoma State University and the University of Oklahoma. The Mesonet maintains one of the world's most comprehensive network of soil moisture sensors.

The use of soil moisture sensors in the Oklahoma Mesonet is a melding of meteorological expertise at the University of Oklahoma and soil science from Oklahoma State University. This network of sensors routinely provides a statewide view of how Oklahoma



Although some of Oklahoma received significant rainfall throughout October and November, part of the state is still very dry. Many producers are hoping the weak El Niño conditions in the equatorial pacific waters will strengthen and provide the much-needed rainfall.

rainfall impacts soil moisture well below ground level. Adequate water is critical for quality, high yielding crops. Water stored in the soil acts as a reservoir for plant use. When the soil profile has good soil moisture, crops can draw on this water to thrive longer between rain events without stress.

For access to various soil moisture products and for more information, visit the site at <http://agweather.mesonet.org/>. ■

### INSIDE

- Determine your area's dryness
- What would an El Niño mean for Oklahoma?

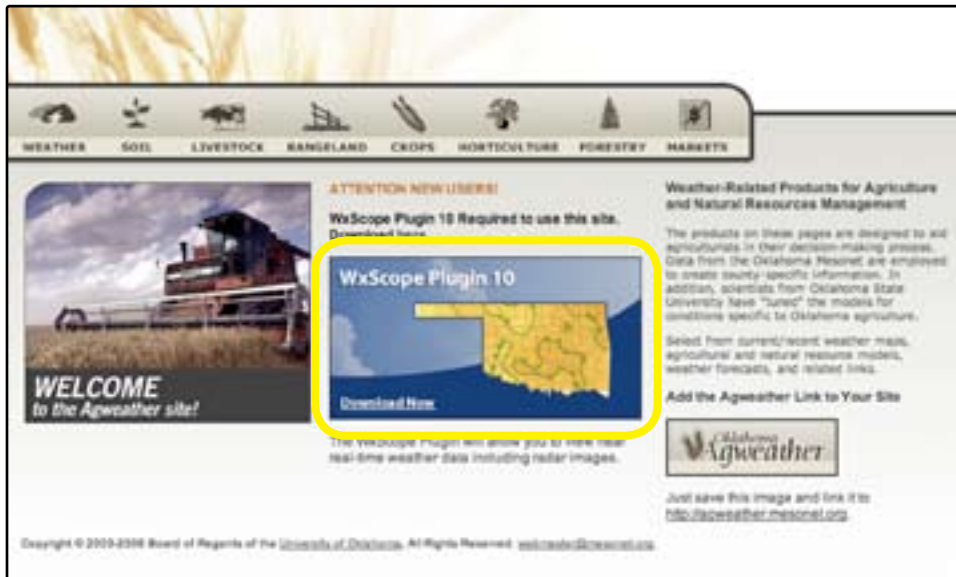
# How dry is your farm?

By Laura K. McKay  
Mesonet Ag Extension Associate

To monitor the dryness of your area, you can utilize several weather tools found on the free Agweather Web site at <http://agweather.mesonet.org>.

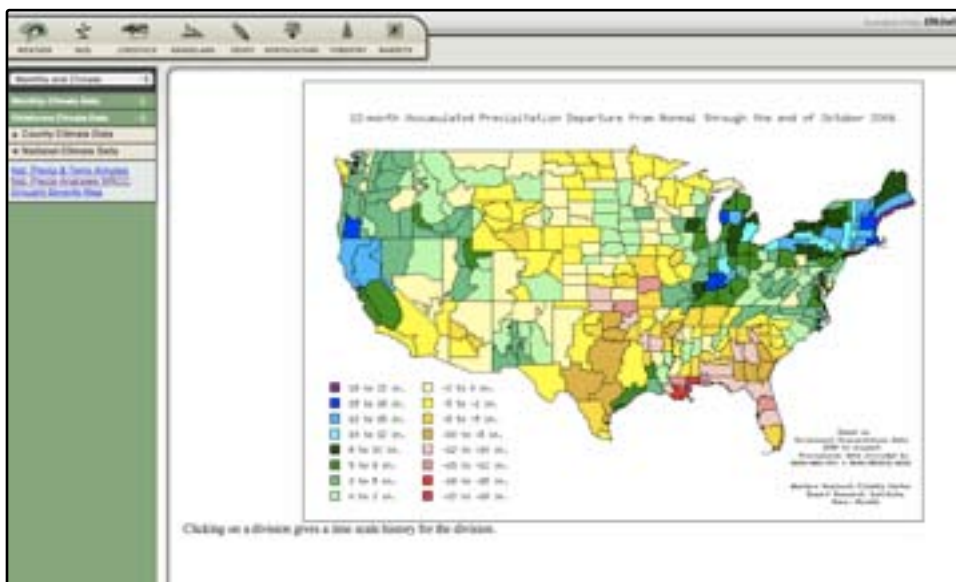
Evaluating your area's moisture, or lack thereof, takes just a few moments. To help you get started, step-by-step directions are listed below. Another site that provides agricultural drought management information can be found at <http://dasnr2.dasnr.okstate.edu/drought/>.

If you have any questions or need more information, call (405) 325-3126 or send e-mail to [laura.k.mckay@okstate.edu](mailto:laura.k.mckay@okstate.edu) or [albert.sutherland@okstate.edu](mailto:albert.sutherland@okstate.edu). ■



**Free download**

Start at <http://agweather.mesonet.org/>. Be sure to download the WxScope Plugin. It's safe and free, and allows you to view all of the resources that Agweather offers.



**Departure from normal rain**

Choose the "Weather" button. Then select "Monthly and Climate," then "National Climate Data." Then select "Nat. Precip Analyses WRCC." Finally, choose "Accum Pcpn. dep. from Normal" for a desired period of time by clicking on the green check mark in that box.

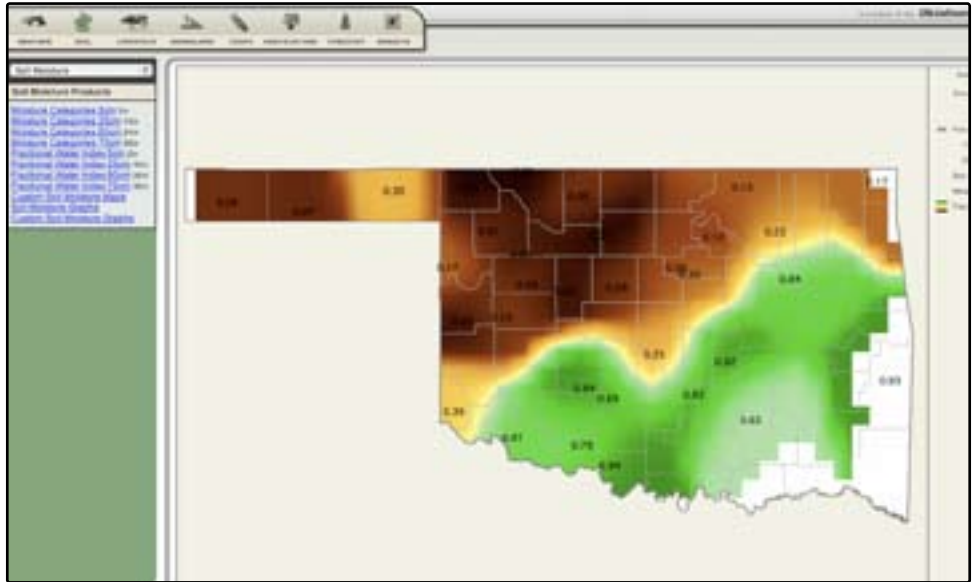
The 12-month departure from normal rainfall is shown at right. You can click on a specific area on the U.S. map to receive a more detailed graph of rainfall and other detailed information for that location.

### Fractional water index

From the home page located at <http://agweather.mesonet.org/>, select the “Soil” icon that is second from the left on the horizontal menu.

Then, select “Soil Moisture” and you will see four depths for looking at the “Fractional Water Index;” 5cm, 25cm, 60cm and 75cm. The 75-cm Water Index is shown to the right.

Green or 1 is wet and brown or 0 is dry. The closer the number is to 0, the drier the area.

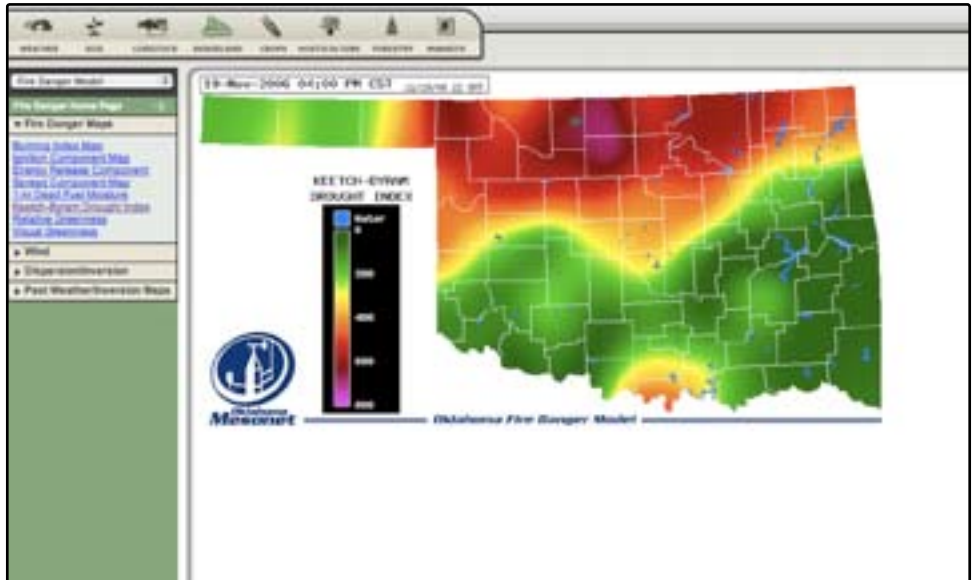


### Keetch-Byram Drought Index

To view the index, select the “Rangeland” button. Then select “Fire Danger Model,” then “Fire Danger Maps,” and finally choose the “Keetch-Byram Drought Index” link.

The Keetch-Byram Drought Index estimates how much precipitation it would take to return the soil to full capacity.

With this index, zero is the point of no moisture deficiency and 800 is the maximum dryness that is possible.



### Rainfall history

Choose the “Weather” button. Then select “Monthly and Climate,” then choose “Oklahoma Climate Data” and then “Climate Trends.” Finally, make sure the top drop-down box says “Statewide” and the bottom drop-down box says “Precipitation.” Then select the “Annual” link.

This image shows the statewide rainfall trend since the late 1800s. It shows wetter historical periods and drier historical periods. With this site, you can focus on a specific time period or certain area of Oklahoma.

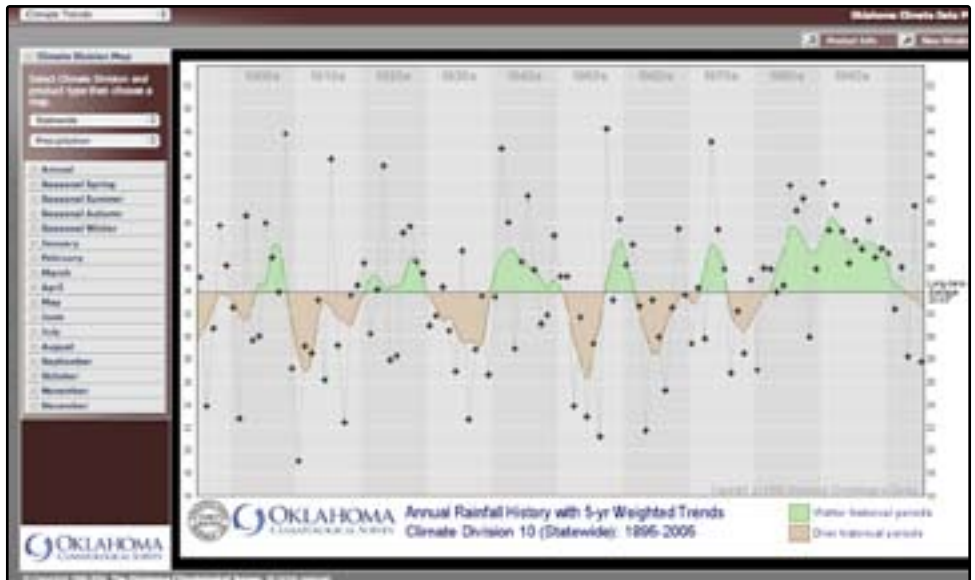




Photo by Laura K. McKay

As agricultural producers wonder when the next rain will come, climatologists are discussing El Niño conditions that are developing in the Pacific Ocean. Although an El Niño can bring warmer temperatures and increased rainfall, it depends on the strength of each particular El Niño. If it doesn't strengthen, it could mean another dry winter in Oklahoma.

# El Niño?

El Niño conditions recently developed in the equatorial Pacific waters, according to the Climate Prediction Center's lead El Niño forecaster Vernon Kousky. While an El Niño can influence Oklahoma's winter towards the mild and wet side, the effect on precipitation depends primarily upon the strength of each particular El Niño.

"Currently, weak El Niño conditions exist," said Kousky, "but there is a potential for this event to strengthen into a moderate event by winter."

The El Niño offers a glimmer of hope to agricultural producers who are reeling from the lack of rainfall. Without improvements in the weather

pattern, this year's wheat grain crop in northwest Oklahoma is in jeopardy. And, like wheat for grain, winter wheat pasture is faring poorly. Once the cattle eat the wheat foliage already in the field, there will not be enough new growth to provide the feed they need. Ranchers may have to supplement feed or move cattle.

Oklahomans should keep a keen eye towards the development of this particular El Niño. While past strong El Niños have proven destructive to other parts of the world, they have aided in Oklahoma's drought relief through above-average rainfall. Should this El Niño remain weak or moderate, it might mean more drought for an already beleaguered state. ■

*Agweather*  
LOCAL. RELIABLE. FREE.

Agweather is a product of the Oklahoma Mesonet.  
<http://agweather.mesonet.org/>

*Editor*

**Laura K. McKay**

Mesonet Ag Extension Associate  
[laura.k.mckay@okstate.edu](mailto:laura.k.mckay@okstate.edu)

**Albert Sutherland**

Mesonet Agricultural Coordinator  
[albert.sutherland@okstate.edu](mailto:albert.sutherland@okstate.edu)

**JD Carlson**

Agriculture and Fire Meteorologist  
[jdc@okstate.edu](mailto:jdc@okstate.edu)

*For more information, contact:*  
Mesonet Agricultural Program  
120 David L. Boren Blvd.  
Suite 2906  
Norman, OK 73072-7305  
405-325-3126