Mesonet
www.mesonet.org
connection
Volume 4 — Issue 10 — October 2013

Nitrogen Key to Better Yield

–by Stephanie Bowen

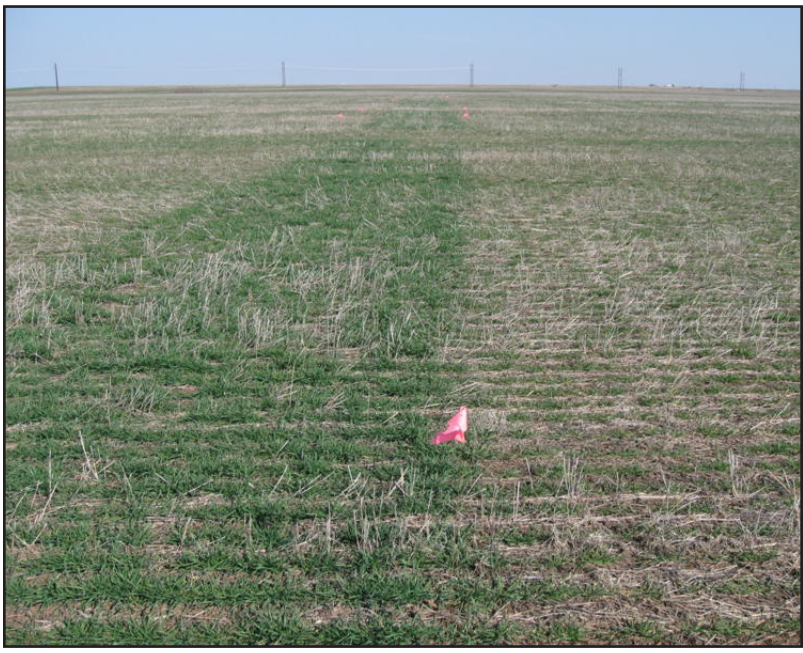
GROWING THE WORLD'S FOOD SUPPLY is no easy task. On any given day, a farmer has to consider the weather, pests, fertilizers and more to get the best yield from his crops. One way to get the best yield is to ensure crops are not nitrogen deficient by utilizing Nitrogen Rich Strips. Sensor readings from these strips combined with Oklahoma Mesonet heat units let growers optimize fertilizer rates.

"The Nitrogen Rich Strip, or N-Rich Strip, is a technique that I spend a great deal of time working with and talking about," said Brian Arnall, Assistant Professor and Precision Nutrient Management Extension Specialist for Oklahoma State University. "It is one of the most simplistic forms of precision agriculture a producer can adopt. The concept of the N-Rich strip is to have an area in the field that has more nitrogen (N) than the rest. Due to our fertilizer applicators this is typically a strip."

N-Rich Strips provide a simple, visible test to determine if your field needs more N. If the N-Rich Strip is greener and has more growth than the rest of your field, than you need to apply more nitrogen to your field.

"The N-Rich Strip alone provides a yes or no (for nitrogen application), not rate recommendation." Arnall said. "At OSU, we use the GreenSeeker optical sensor and Sensor Based Nitrogen Rate Calculator (SBNRC) to determine the rate. The SBNRC uses the Mesonet (data) and sensor readings to predict the yield potential of the N-Rich strip and the yield potential of the farmer practice. From these two yield predictions, N rate is calculated."

Pictured below is an N Rich Strip Applicator in Fairview, Okla. Pictures provided by Brian Arnall.



Pictured above is an N Rich Strip visibly greener than the rest of the field near Hobart, Okla. This is an example of a field needing more nitrogen applied. Pictures provided by Brian Arnall.

The Mesonet data used in this formula is a count of positive Growing Degree Days. This measure of heat units help determine a plant's maturity. The Mesonet provides Degree Day Heat Units on the Agriculture section of the website. The Degree Day Heat Unit Calculator on the website is used for wheat, grass hay, alfalfa, corn, cotton, peanut, sorghum and soybean crops.

"Without the Mesonet, we would not be capable of taking a concept developed on (OSU's) research stations and applying it state wide," Arnall said. ■

MESONET IN PICTURES

Degree Day Counter

- The Wheat Growth Day Counter provides a count of the days with positive degree-day heat units for use with GreenSeeker technology nitrogen recommendations. To view, click on “Agriculture” in the top tab on the Mesonet website, then scroll over “Crop” and select “Wheat”. In the sidebar, click on “Wheat Growth Day Counter”.

Wheat Growth Day Counter (GreenSeeker) Share Tweet

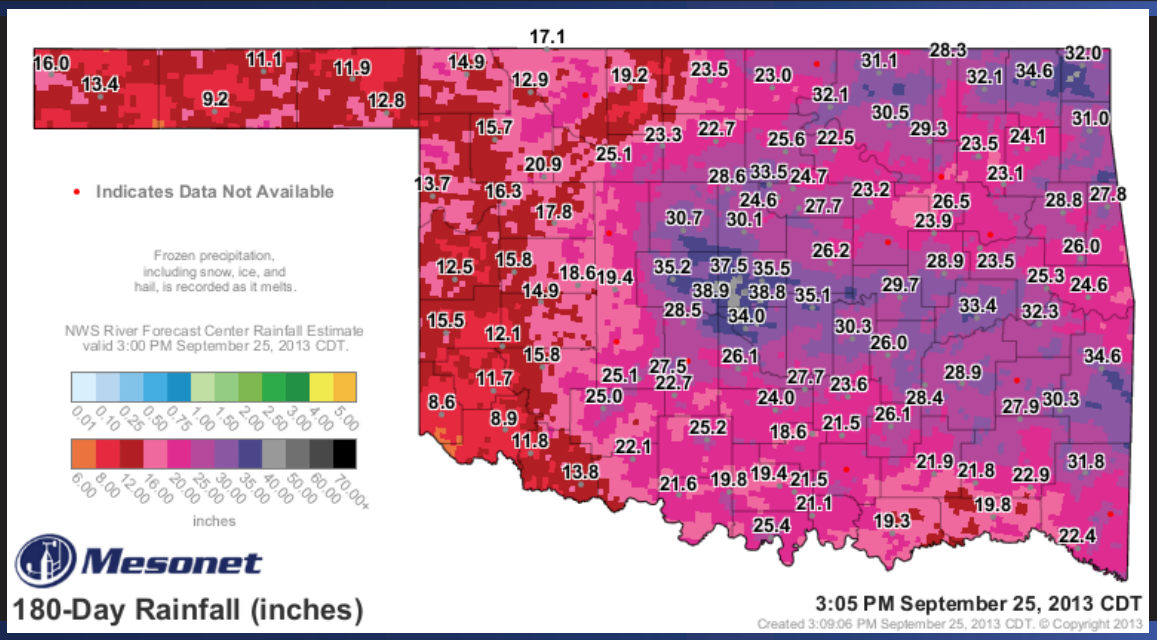
▶ HOBART ▶ Choose Options

Number of days GDD > 0 for Wheat at Hobart, lower threshold 40°F and upper threshold 86°F Print Table

Date	Number of Days	Daily Degree-day Heat Units	Season-long Degree-day Heat Units
2012-08-15	1	36.8	36.8
2012-08-16	2	41.2	78
2012-08-17	3	36.0	114
2012-08-18	4	34.8	148.8
2012-08-19	5	32.5	181.3
2012-08-20	6	32.7	214
2012-08-21	7	34.5	248.5
2012-08-22	8	31.3	279.8
2012-08-23	9	38.4	318.2
2012-08-24	10	38.7	356.9
2012-08-25	11	38.8	395.7
2012-08-26	12	37.7	433.4
2012-08-27	13	36.4	469.8
2012-08-28	14	35.7	505.5
2012-08-29	15	32.8	538.3

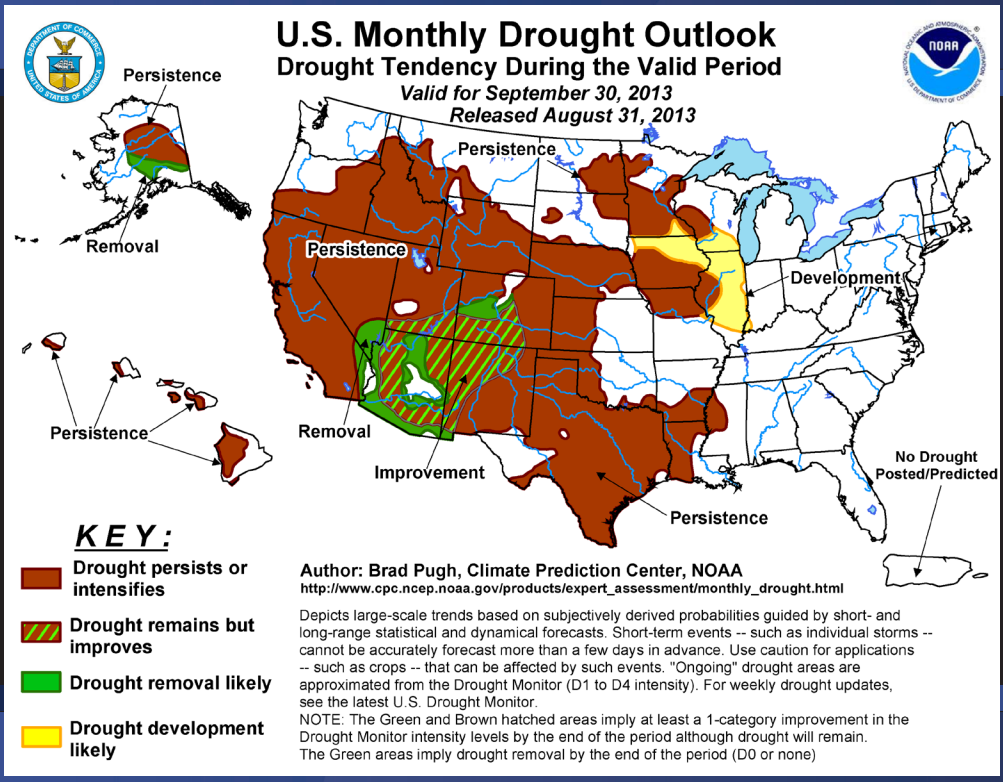
New Rainfall Maps

- The Mesonet has added 60, 90, 120, 180, and 365 Day Rainfall Maps with radar rainfall estimates. To view these new rainfall maps and tables, visit http://mesonet.org. Click on Weather in the top menu bar, and select Rainfall in the side bar. Scroll down to view Rainfall Accumulation maps for various time intervals. The color gradient behind the Mesonet data reflects the National Weather Service River Forecast Center radar rainfall estimates.



Drought Outlook

- The Monthly Drought Outlook is provided by the Climate Prediction Center and can be found on the Mesonet website. Click on “Forecast” then “Long Range”, and scroll down to “One Month Outlooks”.



iPhone App Updates

- The iPhone app has been updated to be compatible with the new iPhone, and the radar has been updated as well. The radar now uses Apple maps, has a transparency control and more radar sites to choose from. To change the transparency, hold your finger down on the screen, and a slider appears, allowing you to adjust the transparency.

Continual Growth

–by Stephanie Bowen

IN TODAY'S AGE of technology, things are constantly changing. It seems there is always a newer, better phone, tablet, computer or software. With these new technologies, the Mesonet is continuously making changes, providing more to our users and better serving them.

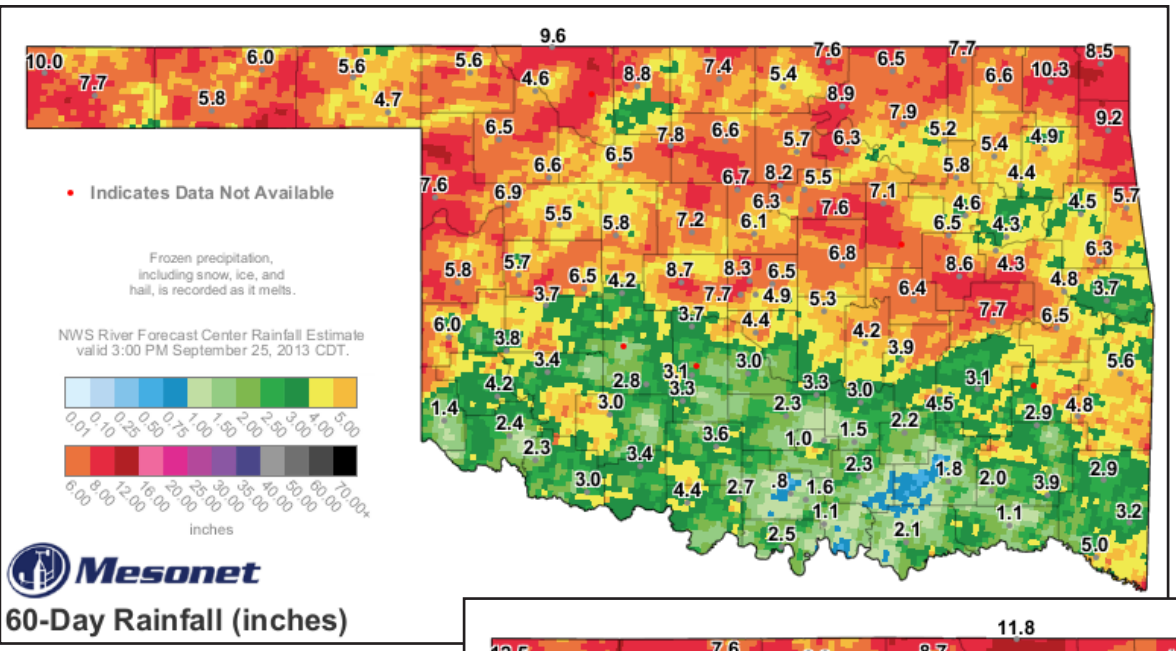
"As applications for Mesonet data continue to grow, we are able to incorporate new products into our website," said Chris Fiebrich, manager of the Oklahoma Mesonet.

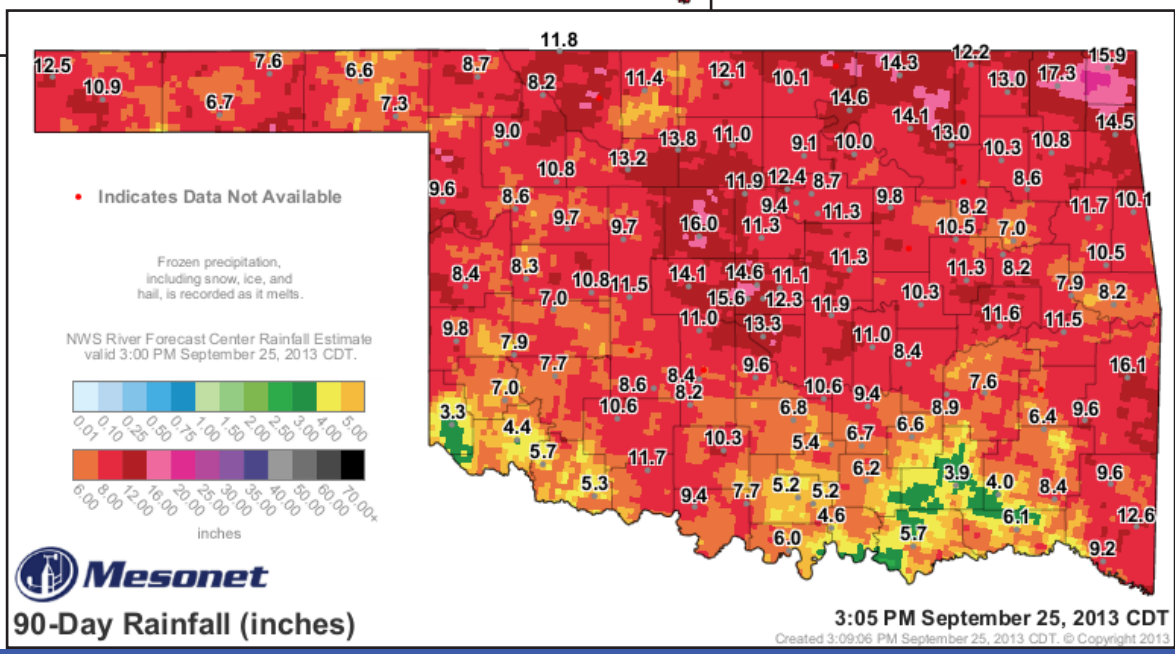
Recently, the Mesonet added new products to the website, as well as updates to the Mesonet iPhone app. The updated app is compatible with the new iPhone, and some changes have been made to the radar. The radar display uses Apple maps and has a transparency control now. There are more radar sites available. To see the choices, click the "i" in the top right corner of your screen and select another radar.

New to the Mesonet website are 60, 90, 120, 180, and 365 day rainfall maps. These can be found under the "Rainfall" section of the "Weather" tab.

Also, under the "Forecast" tab, we are now providing the U.S. Monthly Drought Outlook from the Climate Prediction Center, found under the "Long Range" section.

"Although the Mesonet does not produce forecasts, we know our users like to see forecast information along with Mesonet data," Fiebrich said. "We use many of the National Weather Service's popular products, from local forecasts to three month outlooks, to better serve our users." ■





Summer returns during September, Brings Taste of Fall

By Gary McManus, Associate State Climatologist

SEPTEMBER WRAP-UP

Autumn returned to Oklahoma nearly right on cue during the last week of September thanks to a moisture-laden cold front. The temperatures got downright chilly with lows in the 40s and 50s and highs in the 60s and 70s for a couple of days, although temperatures zoomed back into the 80s on the month's final day. The cold front provided a brief respite to what had become, at least for most of the state, a decidedly dry and warm September. The late heroics by Mother Nature were not enough to avoid the inevitable, however, as the month finished both drier and warmer than normal. According to preliminary data from the Oklahoma Mesonet, the statewide average temperature was 75.4 degrees, 3 degrees above normal and the 22nd warmest September since records began in 1895. The month's highest temperature, 108 degrees, occurred at Waurika on the first day of the month. Kenton was the winner of the lowest temperature contest with a reading of 39 degrees on the 28th. The last triple-digit temperatures of September, and almost certainly for the year, occurred at several locations on the eighth.

The rainfall was a bit trickier since the totals were quite variable across the state. Nevertheless, the statewide average total was 2.60 inches, 1.21 inches below normal and the 51st driest September on record. Kenton, normally one of the driest stations in the state, nearly led all Mesonet sites with a whopping 6.2 inches of rainfall, but was eventually bested by Burbank's 6.5 inches. Those two generous totals stand in stark contrast to the fortunes of most of southern Oklahoma. The Mesonet site at Tishomingo had a September total of 0.74 inches, and Hollis in the far southwest came in with the state's lowest total of 0.55 inches. The Panhandle region was the big winner with their 13th wettest September on record at more than an inch above normal. South central Oklahoma had an average total of 1.71 inches, 2.63 inches below normal to rank as the 27th driest for that area. Oklahoma City, which had been on pace to break their annual rainfall total, finally came back to earth with a total of 1.95 inches. That falls well below their normal September total of 4.06 inches. Their January-September total of 47.13 inches is still the second highest total on record for that period, trailing 2007's 49.27 inches. Oklahoma City's normal annual precipitation total is 36.52 inches. Tulsa has experienced differing fortunes during 2013, unfortunately. Their September total of 1.25 inches was 2.04 inches below normal and brought their January-September total to 25.88 inches, their 35th driest such period on record and nearly 6 inches below normal. Tulsa's normal annual total is 40.93 inches. Records for Oklahoma City and Tulsa date back to 1891 and 1894, respectively.

The widespread rains late in the month helped improve drought conditions that had been creeping throughout the state since mid-August. The U.S. Drought Monitor had gone from 38 percent of the state in drought at the end of August to 49 percent on the final September map. The southwest continued to be the hardest hit area with Jackson and Tillman counties covered by the "exceptional" drought, the worst category on the Drought Monitor intensity scale. The late-month moisture will be reflected on the first October Drought Monitor map.

75.4°F
average statewide temperature for September

22nd WARMEST
September since records began in 1895

2.6"
PRECIPITATION
statewide average for September

49 PERCENT
of the state suffering from at least moderate drought according to the U.S. Drought Monitor on August 28

CALENDAR

OCTOBER

- 2nd: Canadian County Master Gardener Weather & Climate Training, NWC, Norman
- 3rd: Mesonet Booth, H2Oklahoma Water Festival, Elk City
- 11th: NWC Tour for OSU Soil Fertility faculty and students
- 19th: Mesonet Booth, Orr Family Farm Weather Round Up, Moore
- 15th-17th: Tenth Symposium on Fire and Forest Meteorology, Kentucky
- 22nd-23rd: OK Governor's Water Conference and Water Symposium, Midwest City
- 25th: Mesonet Steering Committee Meeting, Norman

NOVEMBER

- 2nd: National Weather Festival, NWC, Norman
- 7th: 3rd Annual OK-First Advisory Committee Meeting, National Weather Center
- 15th-16th: Oklahoma Farm Bureau Convention, Norman

Thank you for 20 years of partnership!

- Ninnekah - Installed October 13, 1993

CONTACTS

Accessing recent (within the past 7 days) Mesonet data
Contact: Mesonet Operator

Instrumentation, telecommunications, or other technical specifications
Contact: Chris Fiebrich

Mesonet agricultural data and products
Contact: Al Sutherland

Mesonet meteorological data
Contact: OCS Data Requests

Earthstorm - K-12 educational outreach
Contact: Andrea Melvin

OK-First - Public safety outreach
Contact: James Hocker

OK-FIRE - Fire management outreach
Contact: J.D. Carlson

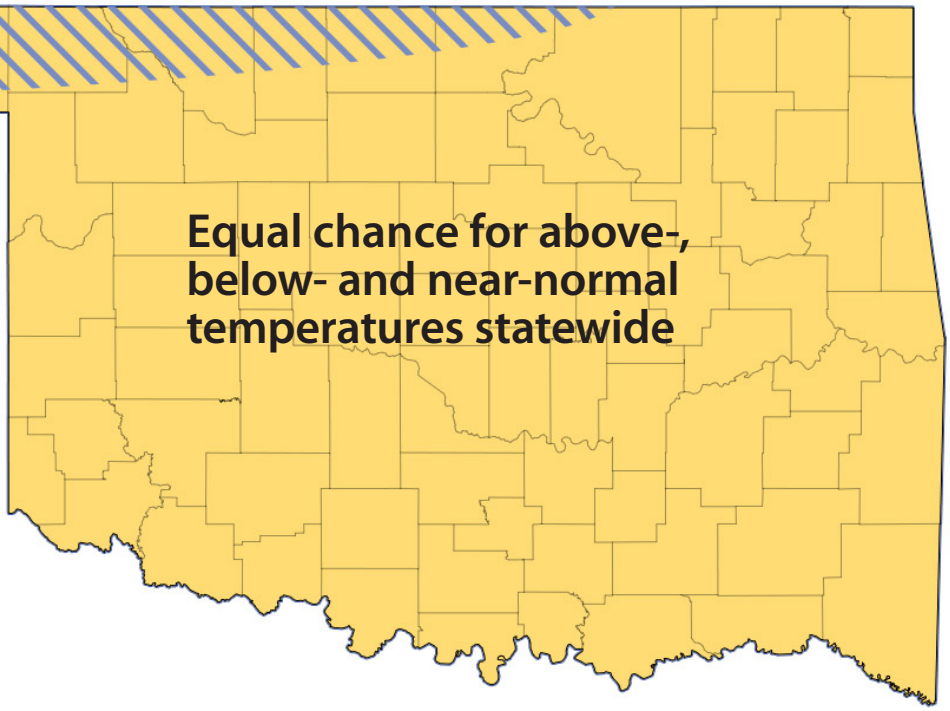
Not sure?
Contact: 405-325-2541 or Chris Fiebrich.

FORECAST FOR OCTOBER

Click here to view the original maps from the Climate Prediction Center.

Chance for below normal precipitation

DISCUSSION: Equal chance for above-, below- and near-normal temperature for Oklahoma. Increased chance for below normal precipitation across the panhandle.and northern parts of the state.



Mesonet Oklahoma's Weather Network | 120 David L. Boren Blvd., Suite 2900 Norman, OK 73072-7305 | T: 405-325-2541 F: 405-325-2550 http://www.mesonet.org

This publication is issued by the Oklahoma Mesonet as authorized by the Oklahoma Mesonet Steering Committee. Copies have not been printed but are available at www.mesonet.org.