Mesonet
www.mesonet.org
connection
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First Hollow Stem Model

–by SEAN HUBBARD, OSU Communications Specialist

MARCH 15 HAS HISTORICALLY been a date for wheat producers to remember. Waiting much longer than that to pull cattle from wheat fields would result in a drastic decrease in yield.

Research has show that First Hollow Stem (FHS), a particular growth stage in winter wheat, is the optimal time to pull cattle off wheat to prevent yield loss. Using Mesonet weather and soil data, as well as FHS observations from the past 17 years, researchers at Oklahoma State University have developed a new tool for producers to consult when deciding how long to leave cattle on their wheat fields.

"Grazing too long will reduce wheat yields, but removing cattle too early will reduce the profit potential of the stocker cattle enterprise," said Jeff Edwards, OSU Cooperative Extension small grains specialist. "Finding the correct balance between these two factors has been the subject of investigation for decades."

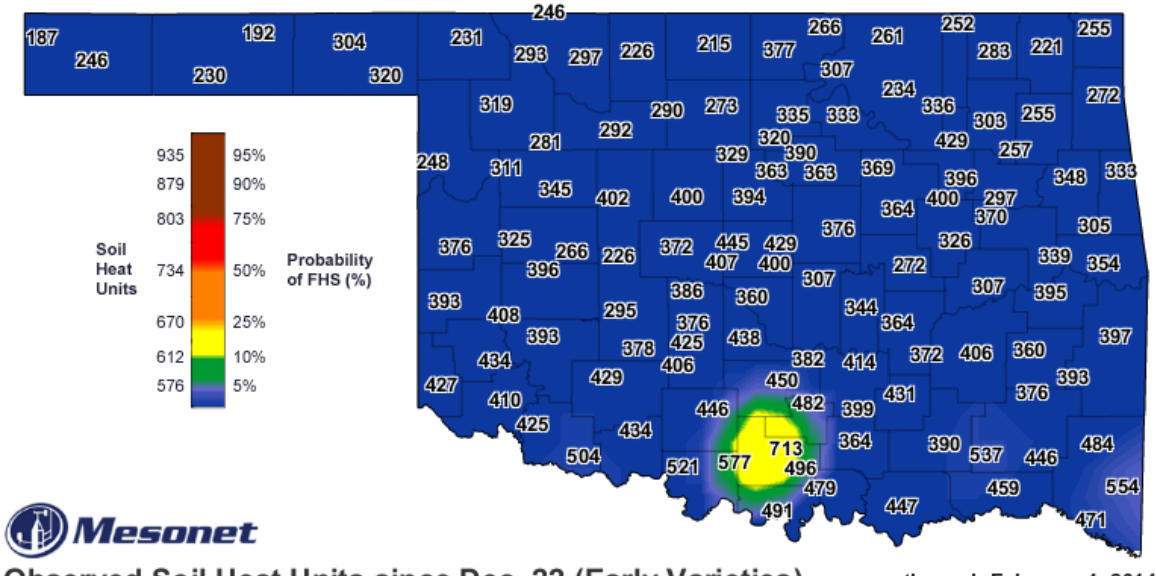
Available on the Mesonet website (mesonet.org), the FHS Advisor is located in the Agriculture section, under both the "Crop/Wheat" and "Livestock/Cattle" tabs. A guide on how to use the Advisor is located in the "Learn More" section of the website. The tool utilizes a soil temperature based model to predict when FHS will occur.

"Looking at a variety of weather and soil variables, we found that 4-inch soil temperatures under sod cover were best correlated to FHS dates," said J.D. Carlson, agricultural meteorologist in the department of biosystems and agricultural engineering at OSU, and developer of the models used in the tool. "The Advisor includes separate models for three different FHS categories of wheat varieties – early, middle and late."

By visiting the website, producers can select their wheat variety to determine its category. Then maps, charts and graphs will provide information on the probability of FHS occurrence.

"Three maps are available for each FHS category," Carlson said. "They include a current map of observed soil heat unit accumulations since model start date, projected one-week soil heat unit totals and projected two-week soil heat unit totals. The projected maps are based on 14-year daily averages of observed Mesonet soil temperatures over the next seven or 14 days from today's date."

In addition to soil heat unit totals, probabilities for FHS are shown. A color scheme is used to show these levels of probability – blues for FHS probabilities less than 5 percent, greens for 5 percent to 10 percent, yellows for 10 percent to 25 percent, oranges for 25 percent to 50 percent, reds for 50 percent to 75 percent and browns for more than 75 percent.



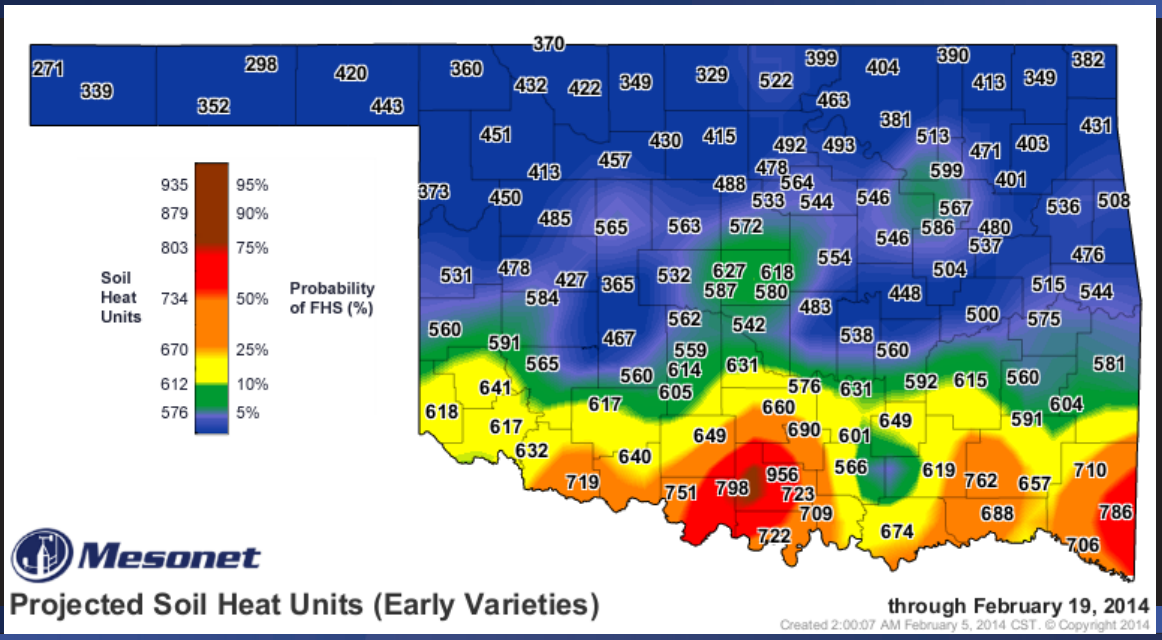
"We recommend scouting for FHS once the greens start occurring in the grower's area, as FHS development starts to speed up at that point," Carlson said. "For those who don't scout, we recommend removing cattle by the date the 50 percent level is reached."

Over a period of time, 100 years for example, a 50 percent probability for FHS indicates that in 50 percent of those years, FHS would have occurred by that date. The same interpretation applies for other percentage values. ■

MESONET IN PICTURES

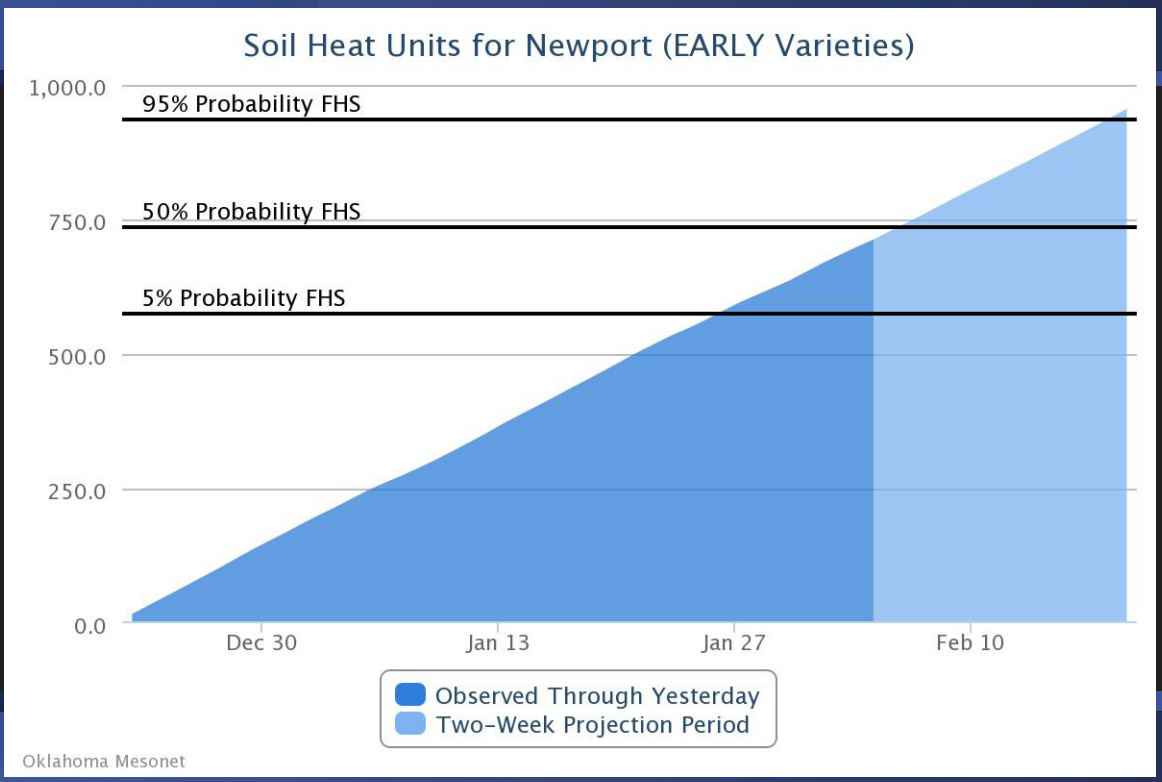
First Hollow Stem - 2 Week Projection Map

- Scouting for first hollow stem is recommended at the 5% probability leve (576 heat units). To view First Hollow Stem Maps, go to www.mesonet.org, click on “Agriculture,” and then select “Wheat” from the “Crop” sub-heading. From the left side menu, select “First Hollow Stem Advisor,” then select “Statewide Maps.”



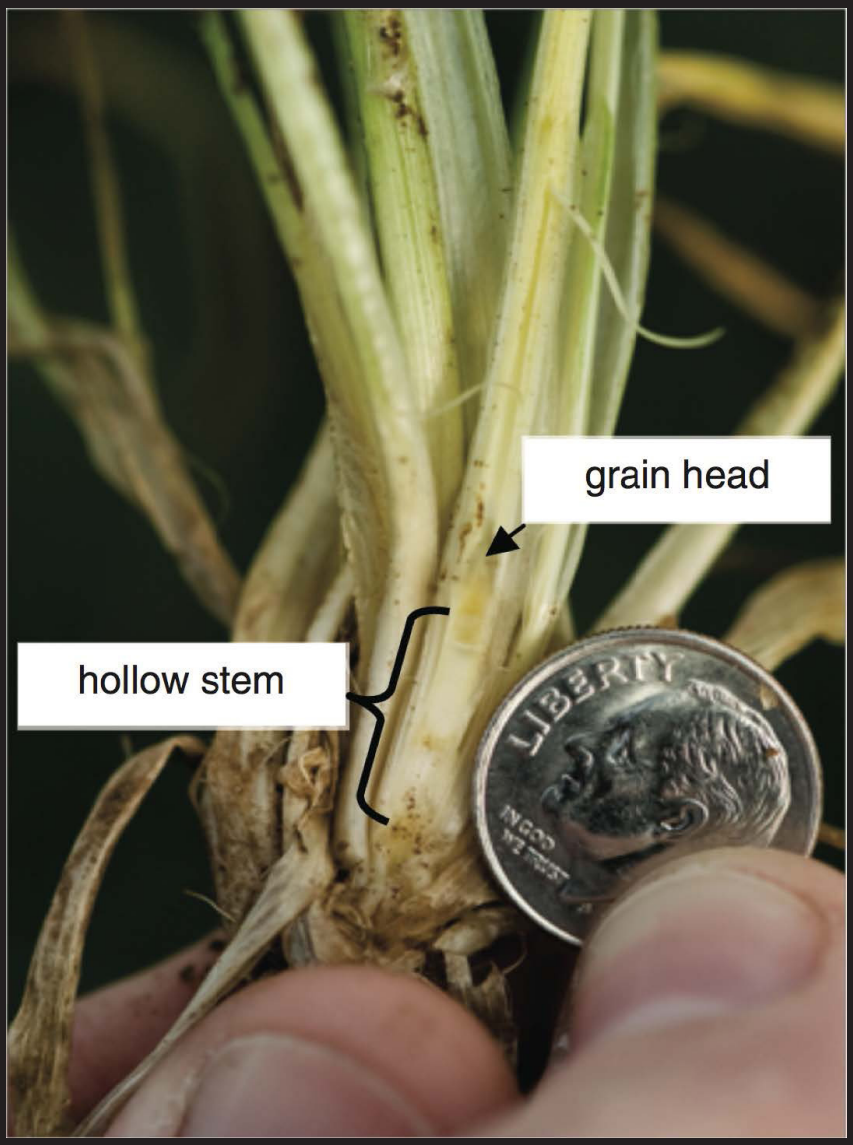
First Hollow Stem - Graph

- The First Hollow Stem Advisor also provides graphs and tables for a local Mesonet site. To view them, go to www.mesonet.org, click on “Agriculture,” and then select “Wheat” from the “Crop” sub-heading. From the left side menu, select “First Hollow Stem Advisor,” then select “Local Mesonet Site.”



Checking for First Hollow Stem

- To check for first hollow stem, go to a nongrazed area, and pull four to five plants. Plants must be dug up to check for hollow stem, because much of the hollow stem present at this time is still below the soil surface. Hollow stem must be measured from a nongrazed area in the same field because grazing delays stem elongation and when first hollow stem occurs. Good places to find areas of nongrazed wheat are field corners or nongrazed areas, just outside of the electric fence. Select the largest tillers on the plants. Split the stems open lengthwise starting at the base. A sharp razor or box cutter will make this job easier. If there is an average of 5/8 inch (1.5 cm or a diameter of a dime) of hollow stem below the developing wheat head, the wheat is at first hollow stem.



McManus Named Oklahoma State Climatologist

–by Stephanie Bowen

"MILK AND BREAD ... BOUGHT! SNOW-POCALYPSE-MAGEDDON 2014 (?) is still on course to hit the state from this weekend on through late next week, promising varying amounts of snow and ice (moisture, yayyyy!!) with at least three different storm systems. Storm amounts, precip types and locations are still a bit iffy at this time, so be sure to keep track of the latest forecasts with your local NWS office and/or your favorite TV weatherperson."

This is the start of Gary McManus' post on January 31 of the Mesonet Ticker, a blog type page where you can read his thoughts on all things weather and climate in Oklahoma. Many of you might know McManus from his popular Ticker or maybe from a drought talk he recently gave at your conference. McManus started with the Oklahoma Climatological Survey (OCS) in 1999, and he recently was promoted to State Climatologist. The Survey maintains an extensive array of climatological information, operates the Oklahoma Mesonet, and hosts a wide variety of educational outreach and scientific research projects.

> *"As a climatologist and native Oklahoman, the chance to serve my fellow Oklahomans in this capacity is a dream come true."*
>
> *- Gary Mcmanus*

"I am thrilled to announce Gary McManus is the new State Climatologist for the State of Oklahoma," said Kevin Kloesel, Director of the Oklahoma Climatological Survey. "Gary has deep roots in Oklahoma, and he is well known throughout the state for his climate expertise and dogged diligence in how Oklahoma deals with drought. His unique combination of wit, humor, professionalism and skill has endeared him to citizens all over Oklahoma. Gary brings significant climate services expertise to the position, as well as over a decade of "climate front lines" work with the media, state agencies, civic groups, and national, state and local professional organizations. Congratulations Gary on being the newest addition to the family of State Climatologists nationwide."

McManus is looking forward to serving Oklahoma and has several goals he would like to accomplish.

"I'm both greatly excited and humbled to be named as the new State Climatologist for Oklahoma," McManus said. "From tracking drought to educating citizens on Oklahoma's unique brand of highly variable weather, my goal is to promote enhanced decision-making, protect the economic interests of the state, and preserve its weather history using the high quality weather and climate data from the world renowned Oklahoma Mesonet. As a climatologist and native Oklahoman, the chance to serve my fellow Oklahomans in this capacity is a dream come true." ■

Oklahoma Drought Expands During Dry January

By Gary McManus, State Climatologist

JANUARY WRAP-UP

Oklahoma became a weather battleground state during January. A large upper-level ridge of high pressure entrenched over the western United States battled a deep trough of low pressure to the east for supremacy over the state's weather. When the ridge gained the upper hand, temperatures at times rose into the 60s and 70s. Several locations even managed to reach 80 degrees on January 12, the highest temperature recorded during the month. A westward push by the trough would result in another arctic blast and a plunge back to winter with highs struggling out of the 20s. Nowata reached a teeth-chattering low of minus 12 degrees following one of those cold fronts on January 6, the lowest temperature recorded by the Mesonet for the month.

For those needing significant moisture, however, there was very little variety as dry weather dominated both sides of the skirmish. According to data from the Oklahoma Mesonet, the month finished with a statewide average of 0.29 inches, 1.16 inches below normal to rank as the eighth driest January since records began in 1895. Of the 120 Oklahoma Mesonet stations, five reported no precipitation during the month, and another 56 ended with a tenth of an inch or less. Those stations left completely dry during January were Altus, Cheyenne, Erick, Hollis and Mangum. The Mt. Herman Mesonet site led the state with 1.95 inches. Oklahoma City experienced its sixth driest January with 0.07 inches of precipitation. Tulsa was not much better with only 0.13 inches, the fourth driest January for that city. Complete monthly records for Oklahoma City date back to 1891 and 1894 for Tulsa. Combined with a dry December, the statewide average for the first two months of winter came up over 2 inches short for the 13th driest such period on record. That same stretch was also decidedly cold. The statewide average temperature for December-January was 35.5 degrees, more than 2 degrees below normal and the 21st coolest on record.

One of the impacts of the near constant northwesterly upper-level air flow over the state was a loss of moist air return from the Gulf of Mexico. Without that humidity, let alone any significant precipitation, wildfire danger often soared in the face of dry air and strong winds. Those same conditions also quickened the pace of drought intensification, something not normally seen during the cool season. A bit more than 38 percent of the state was covered by at least moderate drought at the beginning of the month according to the U.S. Drought Monitor. At month's end, however, that area had increased to nearly 47 percent. The most intense drought continued across southwestern Oklahoma and the Panhandle, a persistence of impacts that dates back more than three years. Much of the far southwest was considered in extreme-to-exceptional drought. Extreme drought had also begun to spread outward from the Texas County area in the Panhandle. The Drought Monitor's intensity scale slides from moderate-severe-extreme-exceptional, with exceptional being the worst classification.

0.29"
PRECIPITATION
statewide average for January

8th
DRIEST
January since records began in 1895

35.5°F
average statewide temperature for December

47
PERCENT
of the state suffering from at least moderate drought according to the U.S. Drought Monitor on January 28

CALENDAR

FEBRUARY

- 1st-6th: American Meteorological Society Annual Meeting, Atlanta, GA
- 3rd: Ag Research Center Admin Society presentation, Dallas
- 21st-22nd: AFR Convention, Norman
- 24th: Steering Committee Meeting, Stillwater
- 26th: OK-First at Emergency Management Day, OKC Capitol

MARCH

- 3-6th: OK-First Certification Course, NWC Norman
- 6th: Drought & Management Presentations, Panhandle Ag Symposium, Goodwell
- 7th: OK-FIRE Full Day Workshop, NWC Norman
- 10-11th: Mesonet Ag Discussion, AFRI Grazing CAP Grant Annual Meeting, Ardmore
- 11-12th: OK-First Assistant Certification Course, NWC Norman
- 11-12th: Oklahoma No-till Conference, Norman
- 14th: OK-First Re-certification Course, Muskogee
- 17th: OK-First Re-certification Course, Stillwater
- 25th: OK-First Re-certification Course, Durant
- 27th: OK-First Re-certification Course, Lawton

Tweet of the Month

OSU DASNR @okstate_ag -"55mph gust near Freedom, OK! Not a good night to be a tumbleweed. @okmesonet"

Find us on

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

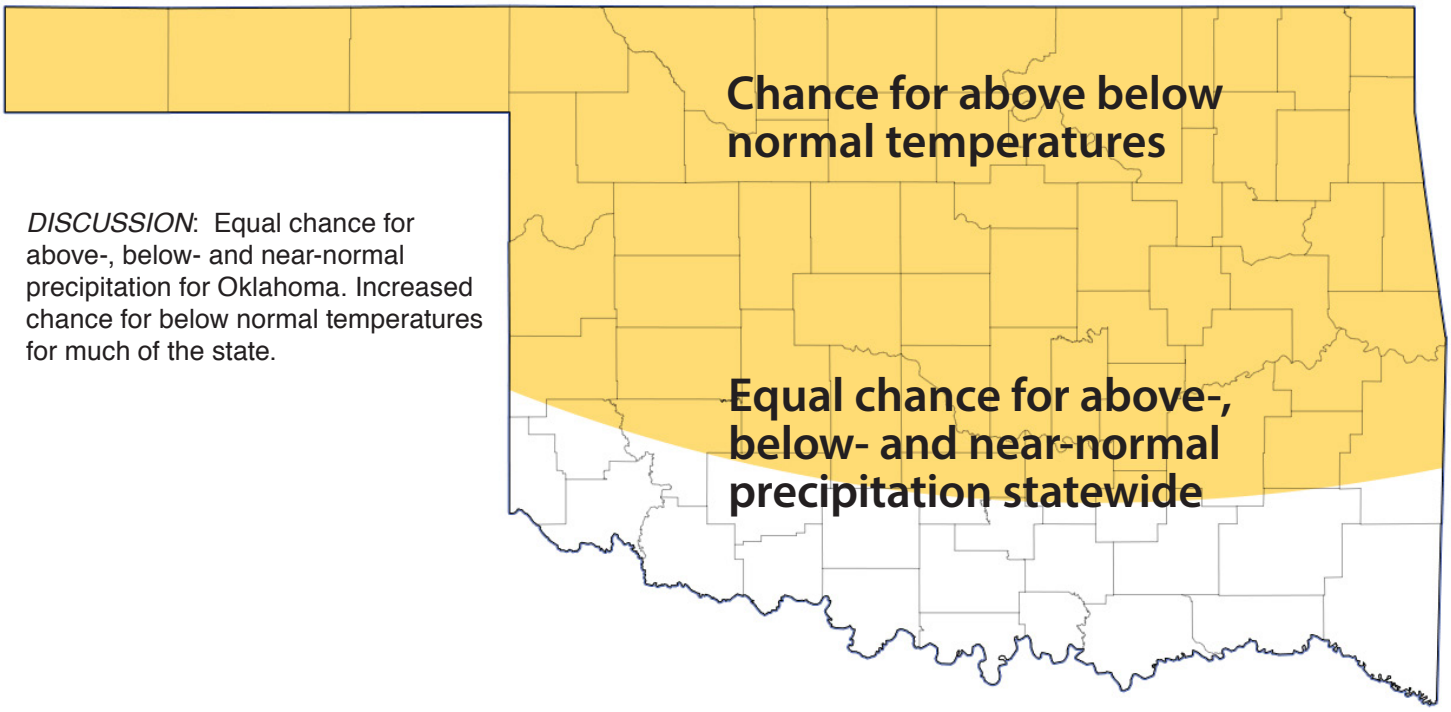
OK-FIRE - Fire management outreach
Contact: J.D. Carlson

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

FORECAST FOR FEBRUARY

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

DISCUSSION: Equal chance for above-, below- and near-normal precipitation for Oklahoma. Increased chance for below normal temperatures for much of the state.



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