

Mesonet Agriculture Farm Monitor

<http://mesonet.org / Agriculture>



The Oklahoma Mesonet Farm Monitor brings together on a single page Mesonet data, National Weather Service forecasts and current values for ten different Mesonet Agriculture decision support products. The page can be viewed on a desktop, tablet or mobile device accessing the full Mesonet website.

The Mesonet Farm Monitor is the home page for the Agriculture section of the Mesonet website. Product titles are links to the specific products providing easy website navigation. Clicking on the indicator dot displays the current data value. Indicators are colored green when they are in a range typical for healthy plant growth or optimal livestock care. They are colored yellow when index values may be of concern, when conditions warrant closer monitoring. Indicators are colored red when values reach extreme conditions and may require immediate action.

- 1) Sunrise and Sunset times calculated daily for the specific Mesonet site.
- 2) Mesonet site air temperature, human heat or cold index, relative humidity, 24-hour rainfall and wind direction arrow updated every 5 minutes.
- 3) Wind speed at 10 meters (33 feet), the top of the Mesonet tower, and at 2 meters (7 feet), updated every 5 minutes. The 2-meter wind speed is used for evapotranspiration calculations and ground application wind speed.
- 4) Three-day average of 4-inch bare soil temperature averaged over the previous three days in degrees Fahrenheit.
- 5) Capsule National Weather Service forecasts.
- 6) Menu tab to change the Mesonet site by map selection, city name or zip code.

- 7) Shares the most current Mesonet Farm Monitor page with others via Facebook or Twitter.
- 8) Cattle Comfort Advisor estimates cattle stress for cattle outdoors exposed to full sunlight and without windbreaks. The index is reported in degrees Fahrenheit and updated every 5 minutes.
- 9) Reference evapotranspiration for short crop (4-inch mowed turf) and tall crop (alfalfa canopy) are calculated using the American Society of Civil Engineers Standardized Reference Evapotranspiration Equation. Values are inches for the previous day.
- 10) The Burning Index is a Mesonet OK-FIRE product. It is the most all-encompassing Mesonet fire danger index for monitoring fire outbreak potential and behavior. The Burning Index value divided by 10 is an estimate of flame height at the head of a fire. The index is updated hourly close to the half-hour.
- 11) Inversions occur when the air temperature near the ground is cooler than the air temperature at the top of the Mesonet tower. Small spray particles can be trapped by the upper warm air layer and move laterally to sensitive plants or animals. Inversion is reported as the difference in degrees Fahrenheit between the upper and lower Mesonet temperature sensors. Values are positive when an inversion is present.
- 12) Dispersion is a indicator of how smoke, odors or small spray particles will disperse vertically and horizontally. Low dispersion values (1-3) means smoke, odor or spray particles will hang together and disperse slowly. Smoke crossing a highway in low dispersion conditions may block driver visibility, causing extremely hazardous driving conditions. With higher dispersion values (4-6), smoke, odors or spray particles will disperse more rapidly avoiding complaints and/or hazardous conditions.
- 13) Mesonet soil moisture point measurements are reported as Fractional Water Index. This index is 0.0 when the soil sensor is completely dry indicating a bone dry soil. At 1.0, the soil sensor is fully saturated indicating a saturated soil. Sensors monitor soil moisture over the range of plant available water. The 10-inch Soil Moisture sensor monitors the soil depth where broadest number of plants have actively functioning roots.
- 14) Keetch-Byram Drought Index (KBDI) indicates moisture deficiency in upper soil layers. Values range from 0 for a soil at field capacity to 800 for a completely dry soil. The KBDI assumes that 8 inches of water in hundredths of an inch is needed to return the soil to field capacity. High KBDI values are often associated with more severe drought and increased wildfire occurrence. When KBDI values are high, fires can be expected to actively burn organic debris in the soil (litter and duff layers in the soil) and even live fuels may burn actively.
- 15) Peanut leaf spot is a warm-season, foliar fungal disease that attacks peanut leaves and stems. The Peanut Leaf Spot Advisor is based on hours when the air temperature is between 60 and 86 degrees Fahrenheit, and the relative humidity is 90% or higher. Disease control is recommended when 36 Peanut Leaf Spot hours have accumulated, unless a protective fungicide was applied within enough days to provide protection.
- 16) Pecan scab is a warm-season fungal disease that attacks pecan leaves and nuts. The Pecan Scab Advisor value is based on the hours when the air temperature is at or above 70 degrees Fahrenheit, and the relative humidity is at or above 90%. Pecan scab threshold hours are: 10 scab hours for highly susceptible varieties, 20 scab hours for moderately susceptible varieties, and 30 scab hours for low susceptible varieties and native trees.

