



Summary of Texas A&M Forest Service National Fire Danger Rating System Changes October 2025

The Texas A&M Forest Service Predictive Services fire danger products have been upgraded from using the National Fire Danger Rating System Version 3 (NFDRSv3) to the [National Fire Danger Rating System Version 4 \(NFDRSv4\)](#). The transition is being prompted by the shutdown of the Weather Information Management System (WIMS) [September 30th, 2025](#).

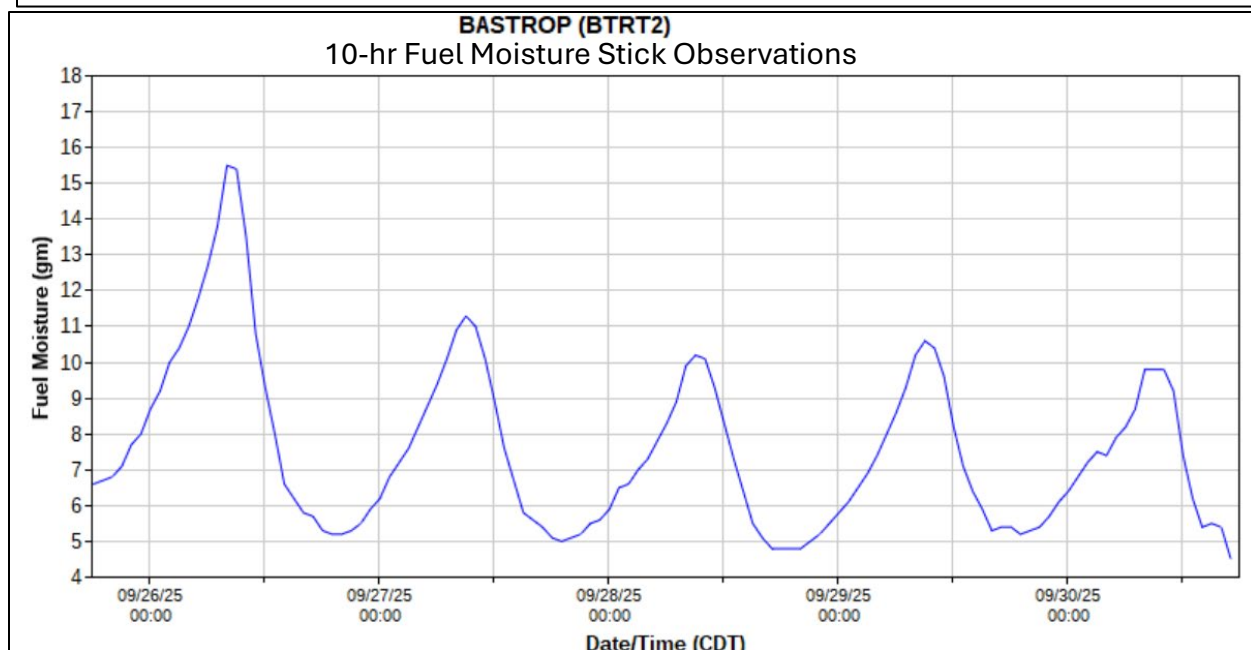
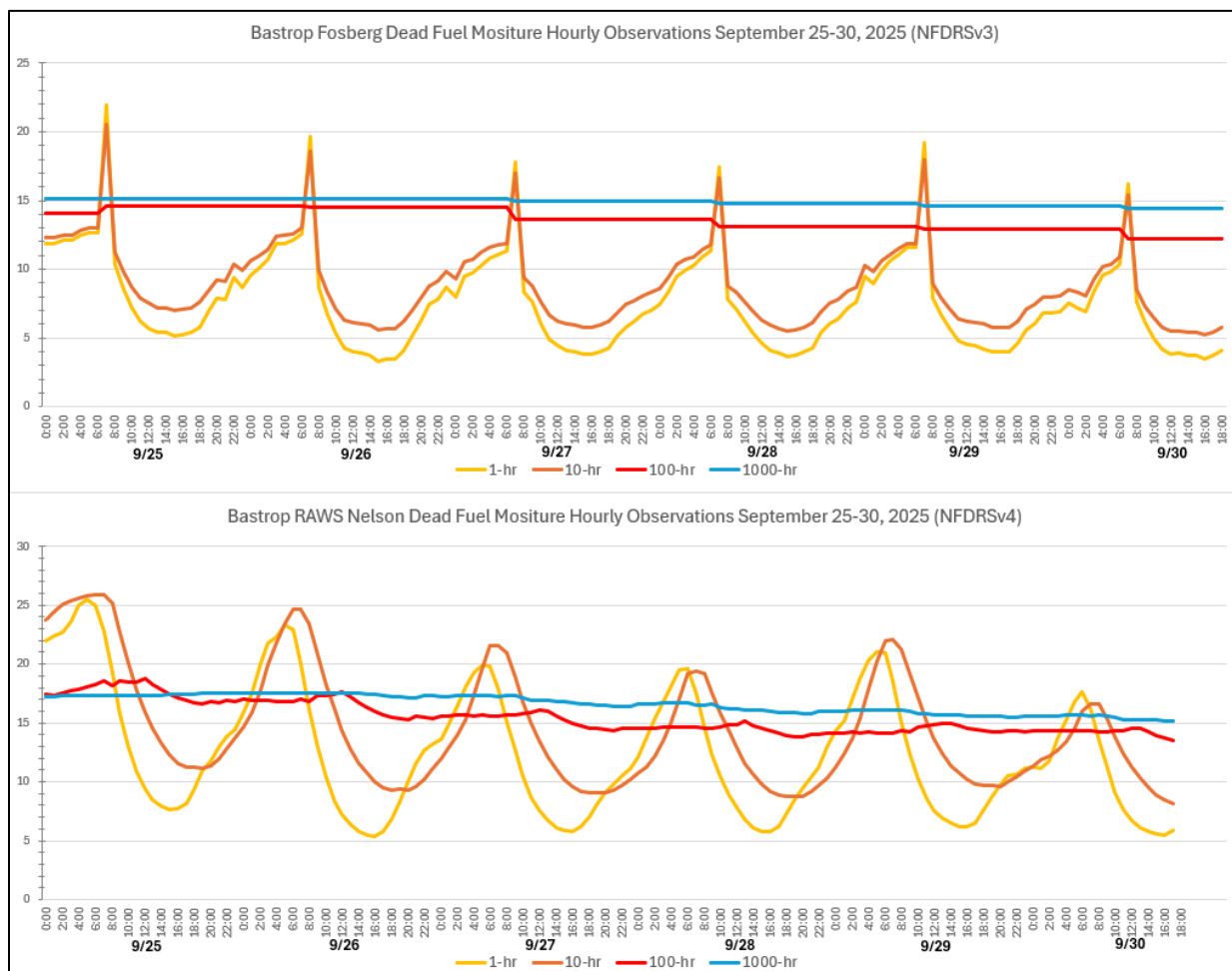
*Since the Fall of 2023, Texas A&M Forest Service has coordinated with the United States Department of Agriculture Forest Service Missoula Fire Sciences Laboratory to refine NFDRSv4 to serve the needs of Texas to provide accurate and timely fire environment and burning condition information for fire management staff and firefighters for the state of Texas. **Texas A&M Forest Service NFDRSv4's outputs remain the same and should be interpreted the same as NFDRSv3.***

There are several internal components and changes to the process of NFDRSv4 calculations compared to NFDRSv3.

NFDRS V3 (Non-Operational/Sunsetted)	NFDRSv4 (Operational)
Outputs and forecasts based on 1300-1300 (24- hr) time period with providing a snapshot of conditions at 1300	Outputs and forecasts based on 2000-2000 Central Daylight Time or 1900-1900 Central Standard Time (24-hr) with outputs based on daily extreme within 24-hour period (min fuel moisture for 1-hr,10-hr, 100-hr, 1000 hour) (max energy release component and burning index)
Observed and forecast products available at 1700	Observed and forecast products available at 2100
7-Day Forecasts based on 12Z forecast point data for fire weather stations from local NWS offices.	7-Day Forecasts based on 00Z forecast of National Digital Forecasts Display and National Blend of Models
Fuel Model G used (No longer available)	Using 50/50 blend of Fuel Model Y and V
Fosberg Dead Fuel Moisture Model used for 10,100,1000 hr fuel moisture percentiles (Rounded to whole numbers, Ex: 5%)	Nelson Dead Fuel Moisture Model for 1-hr,10-hr, 100-hr,1000-hr dead fuel moisture to calculate hourly outputs (Required to use hundredths of a percent, Ex: 5.23%)
Herbaceous and Woody Fuel Moisture required season code, greenness factor, (manual changes) for green up and curing.	Herbaceous and Woody Fuel Moisture based on Growing Season Index (GSI). Calibration needed by each station. Standard GSI settings not recommended

Comparison of Fosberg Dead Fuel Moisture Outputs vs Nelson Dead Fuel Moisture Outputs. Nelson Dead Fuel Moisture is the operational output in Texas A&M Forest Service Predictive Services Products. Additional information on the Nelson Dead Fuel Moisture Model can be found in the 2007 publication of [International Journal of Wildland Fire](#).

Variation of the Nelson 10-hr fuel moisture values and the Remote Automated Weather Station 10-hr fuel moisture stick is due to slight differences in diameter that each is used for the calculation, however both diameters are within the 1/4-1 inch range for 10-hr dead fuel. 10-hr fuel moisture sticks are not required for NFRDS Calculations. They are extra sensors added to provide real time information of fuel moisture trends.

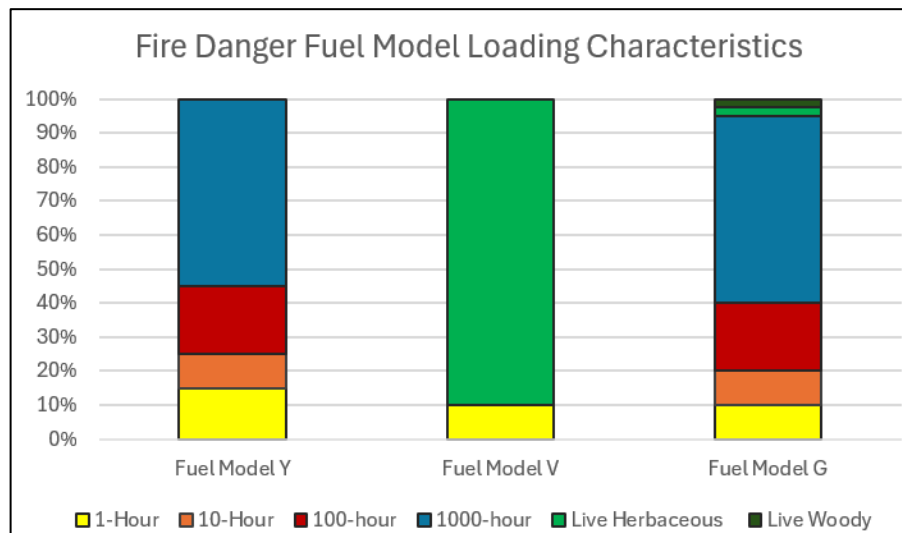


NFDRSv4 Fuel Model Change

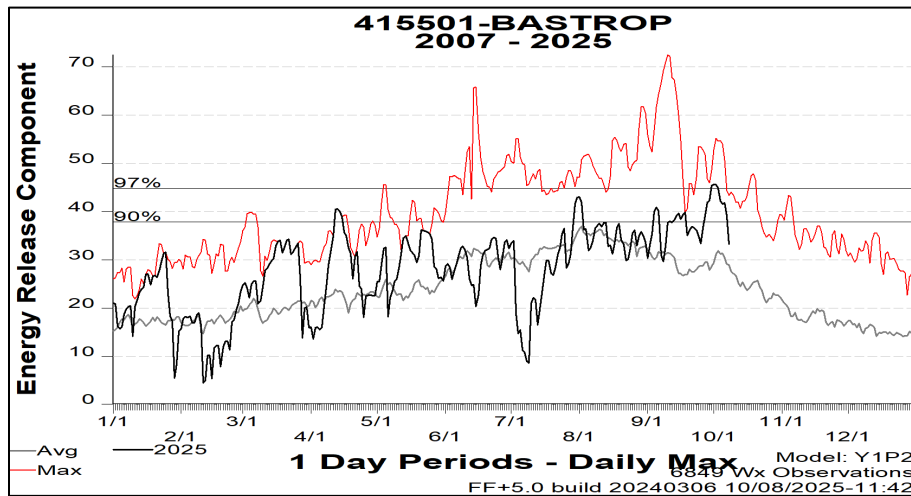
NFDRSv4 reduced the total number of fire danger fuel models in NFDRSv3 from 20 down to 5. Fuel model G was used in NFDRSv3; however, it is no longer available to use in NFDRSv4. Fuel model Y was supposed to replace fuel model G, but does not include any modeled live fuel moisture, only dead fuel moisture. Without any live fuel moisture input into the model, fuel model Y would over predict risk with higher Energy Release Component (ERC) and Burning Index (BI) values even when grass is fully green.

Fuel model V is heavily weighted toward live herbaceous fuel. Once the herbaceous fuel loading is cured from drought or a freeze, the herbaceous loading is transferred into the 1-hr fuel loading. Once this transfer occurs, there is a very high degree of variability in ERC outputs from day-to-day because of no heavier fuel loading from 100-hr or 1000-hr fuels in the fuel model. The rapid changes in ERC for fuel model V alone would not provide a good build-up index.

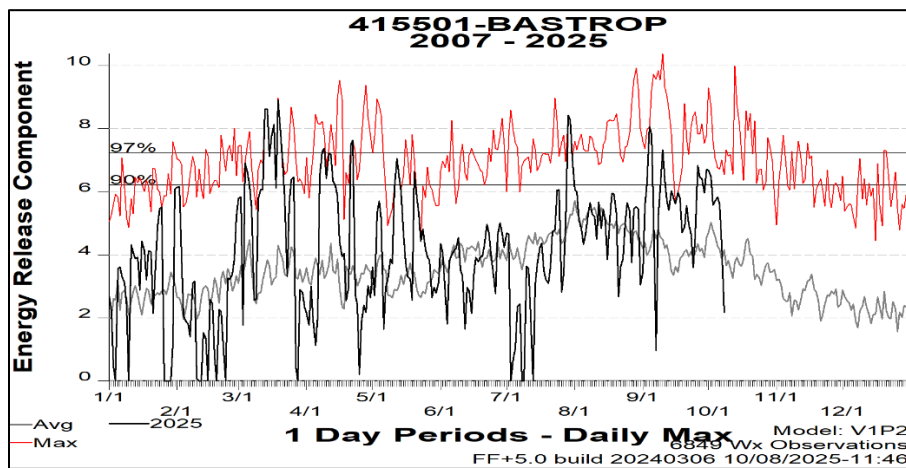
In effort to project a composite fire danger fuel model with all time-lag dead fuel moisture (1-hr, 10-hr, 100-hr, 1000-hr) and live fuel moisture, a 50/50 blend of fuel model Y and fuel model V are used to produce ERC and BI outputs in TAMFS products. There is currently no fire danger fuel model in NFDRSv4 that incorporates all dead and live fuels.



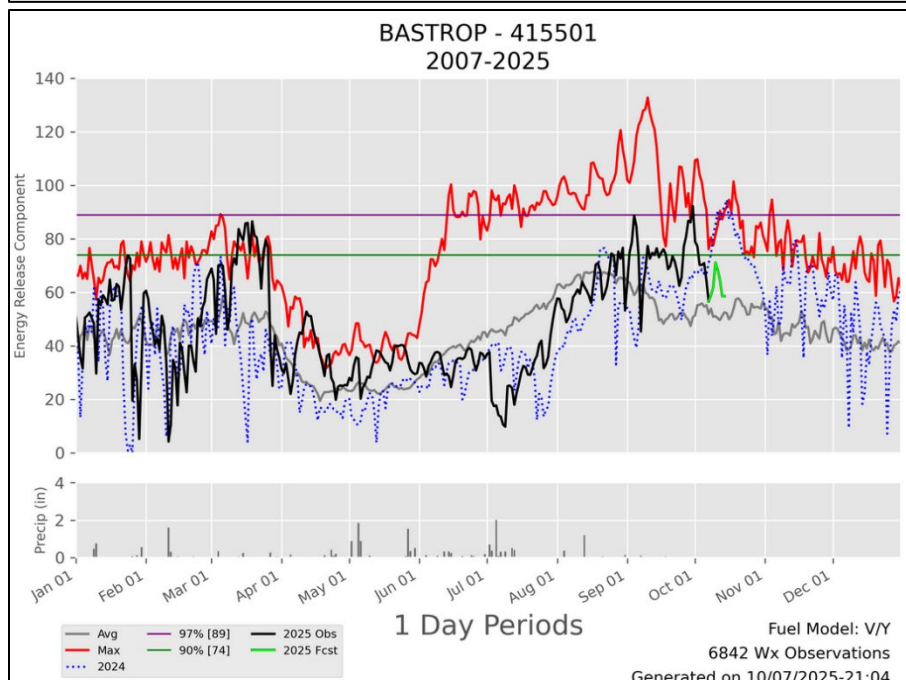
Please contact Luke Kanclerz, Texas A&M Forest Service Predictive Services Department Head with additional questions at 903-918-9073 or lkanclelz@tfs.tamu.edu.



Fuel Model Y has no live fuel in the model over and will over predict fire danger during the spring and early summer.



Fuel Model V has only 1-hr and herbaceous fuel in the model and has a high degree of variability without 100-hr and 1000-hr fuel. This variability would not provide a good build up index for ERC.



Equally weighing (50/50) and normalizing outputs for fuel model Y and V provides a better composite fuel moisture index for ERC as it combines all dead time lag fuels and live herbaceous fuel moisture.