# Missouri Soil Temperature Just A Click Away

## *Tillage Depth Temperature Available Now- More To Come*

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Dr. Pat Guinan, State Climatologist, University of Missouri Extension Commercial Agriculture Program, spoke recently about the Missouri cooperative weather station network at the Delta Center in Portageville, Missouri.

"In the 1960s, on a daily basis, a dedicated observer would take a temperature observation and a precipitation observation. This included snowfall and snow depth. In the 1990s, daily monitoring of weather became a lot more than just temperature and precipitation. We monitor humidity, soil temperatures at tillage depth, wind speed, wind direction and solar radiation."

Soil temperature data assists growers in determining when to plant while solar radiation data is an important component especially in regard to evapotranspiration. "The moisture loss from the soil as well as from vegetation is very important to irrigation scheduling. Knowing how much water you need to apply to your field. Using these variables, we are able to estimate the evapotranspiration that occurs and provide crop water use reports to producers. Producers could use this information for their irrigation scheduling," explained Guinan.

The Delta Center station has gone wireless with this information. "Now we can provide real time information. The Delta Center and the Clarkton weather station have real time conditions so anybody who has internet access can go on line and look at the latest five minute weather conditions," added Guinan.

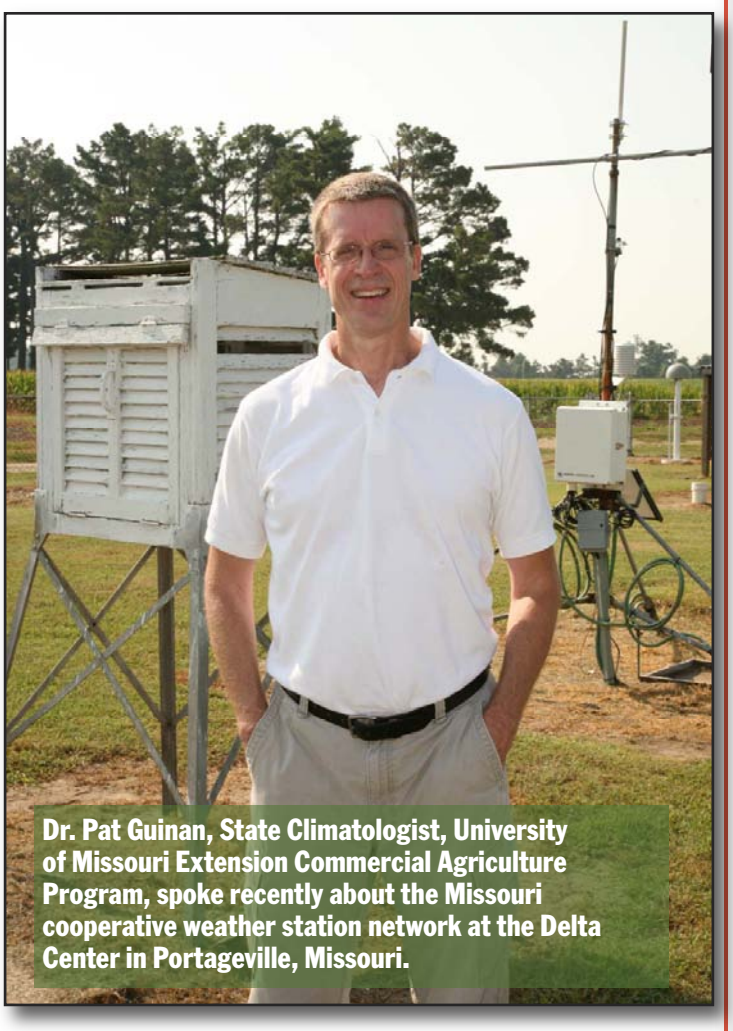
Guinan gave some examples of the application of the data collected. "We already use this information in crop models, in insect models, in disease models, in calculating degree days and determining the emergence of insects. Looking at temperature data using climate data, we can then forecast when certain insects might be a problem. Looking at humidity and temperature data you can get an idea when disease might be appearing in the field."

Chemical sprayers could use real-time wind monitoring in order to avoid misapplication of pest and disease control chemicals. Spring planting decisions or autumn application of anhydrous ammonia decisions benefit from the latest soil temperature data.

Decisions regarding whether to proceed with controlled fire burns can be made. Pilots can be informed of the latest weather conditions during take-off or landing. The National Weather Service could use real-time information flood warnings and severe weather warnings. Homeland security can use real-time weather data in the decision making process for emergency management and preparedness officials. Heat index and wind chill information could provide immediate awareness to health officials and the public of potential health hazards.

The University of Missouri, Missouri Agricultural Weather website address is http://agebb.missouri.edu/weather/index.htm. Information such as weather forecast, historical weather, and a link to Horizon Point, Weather via e-mail will be found.

Horizon Point, a free web-based program at the University of Missouri delivers site-specific weather information in the form of management advisories to growers via their e-mail address. Growers will need to set up a user account and determine the latitude and longitude of the specific location for which the reports will be used. Two websites you can use to find the latitude and longitude are www.cares.missouri.edu/berm and msrmaps.com. It will take approximately two weeks to begin receiving e-mailed reports. Horizon Point is currently reporting on 700 Missouri locations.



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Health hazard information could soon be provided for producers with livestock. University of Missouri animal science students, computer science students and journalism students are working on an application for smart phones. Dr. Don Spiers said the students are working together to create an app cattlemen or dairy farms can use to determine the heat stress value associated with the current temperature and humidity readings. The app will deliver a heat stress value and give suggestions for relieving heat stress in grower's herds. Spiers said a website is also being developed for livestock. Δ

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