

Runoff Risk Advisory Forecast

Frequently Asked Questions

What is the Runoff Risk Advisory Forecast (RRAF)?

The Runoff Risk Advisory Forecast (RRAF) is a risk assessment tool that identifies when and where there is a high likelihood of surface water runoff occurring in specific watershed basins. The information is presented on a color-coded map (indicating Low-Medium-High risk of surface runoff) at the website: <http://www.manureadvisorysystem.wi.gov/app/runoffrisk>

How does the RRAF work?

The RRAF map shows the assessment of day-to-day runoff risk across Wisconsin using National Weather Service (NWS) forecast models that consider predicted precipitation, forecast temperature, soil moisture content, snow accumulation, snowmelt forecasts and actual individual watershed basin characteristics. These models are updated 3 times a day to account for changes in weather forecasts and soil moisture conditions over short time periods. The results are then utilized to produce the maps that appear online.

Who makes the RRAF maps?

Forecasters with the NWS North Central River Forecasting Center utilize components of existing NWS models (Sacramento Soil Moisture Accounting (SAC-SMA) Interflow time series; Rain + Melt (RAIM) time series; and Upper Zone Tension Water Deficit (UZTWD) time series) to analyze predicted precipitation looking forward 5 days and predicted temperature looking forward 10 days. The resulting model data is then forwarded to researchers at UW-Madison where the information is processed and predicted runoff volumes categorized to produce the watershed maps which are then posted online and updates three times each day.

How accurate are the RRAF maps?

As part of the process of developing the forecast tool, simulated runoff events based on the model predictions were compared to actual runoff event data collected by researchers from the United States Geological Survey (USGS) and the UW from 11 sites around the state (4 field scale sites and 7 USGS gauged watershed basins). Those results were encouraging and continued refinement of the model should yield even more accurate results as additional data are collected. Remember however, that the risk levels shown on the map illustrate average predicted conditions across the watershed basin. Individual field conditions will vary and must be considered every time a nutrient application is planned.

Why are the watershed basins so large?

Because the RRAF relies on existing National Weather Service models for data input, the results are presented at the scale those models utilize. NWS basins range in size from 9 to 1,800 sq. mi. but the average basin size is about 200 sq. mi.



Are the RRAF maps the only thing one should consider when deciding to apply nutrients?

No. The RRAF is just one more tool that producers and others who apply nutrients to Wisconsin croplands can use when deciding where and when to apply manure or other fertilizers. Individual knowledge of local field conditions is absolutely critical to making well informed decisions about nutrient applications. Some fields, because of their slope, proximity to water resources, or other factors can be high risk for nutrient applications at all times while others are not. Soil moisture in individual fields will vary due to rainfall, snowpack, field aspect, and a large number of management factors. Each of these conditions will vary across the landscape and should be factored into a spreading decision.

Is the forecast map a regulatory tool?

No. The map is not a regulatory mechanism. It is being provided as another tool to help Wisconsin producers, manure haulers, and nutrient applicators make informed decisions about when to land apply manure or other nutrients. DATCP has no intentions of using this forecasting tool for regulatory purposes.

Is the RRAF tool a final product?

No. The forecast tool should be considered a work in progress. As weather forecasting tools and methods become more accurate and additional edge-of-field and stream gauge information becomes available for forecast validation exercises, the runoff risk advisory committee will continue to refine the forecasting tool. Much of the future refinements to the RRAF website will be based on comments received from potential users of the product. We encourage users to please continue to check the website and let us know what you think, what is working and where you see things we can improve.

