

How the Agroclimate.org Peanut Leaf Spot Advisory tool Works

Georgia, Florida, and Alabama

The leaf spot advisory for Georgia, Florida, and Alabama uses the algorithm developed at Auburn University in the late 1980s and early 1990s known as AU-Pnuts¹. It relies on recent precipitation events and forecasts for future rainfall for the selected weather station, and calculates a relative risk of *low*, *medium*, or *high*. A graph is displayed showing the risk levels over the previous two weeks.

Specifically, risks are determined according to the criteria in the following table:

Average probability of precipitation over next 5 days	Number of days w/ rain in last 10 days	Risk
≥ 50%	N/A	Hi
40% - 49%	≥ 1	Hi
40% - 49%	0	Med
20% - 39%	≥ 2	Hi
20% - 39%	< 2	Med
< 20%	≥ 3	Hi
< 20%	< 3	Low

The data for the number of rain events comes from the selected weather station. The precipitation forecast comes from the nearest National Weather Service station at which a forecast is generated (this location is indicated under the graph). We download the Global Forecast System Model Output Statistics Extended forecast (GFS-MOS (MEX))² from this station daily, and calculate the average of the 24-hour precipitation probabilities for the next five days.

An individual grower's risk, however, depends on when fungicide was last applied, if and when irrigation occurred, and if the rainfall at his particular location differed from that at the weather station selected. Therefore the user has an opportunity to enter the number of times irrigation took place, the number of times it rained on his peanut field, and the number of days since the last spray was applied. (If rain events are not known, data from the weather station can be used, but this should be done with caution given the wide variability in rainfall during the summer from place to place.)

With the new information, the tool then re-calculates risk from the table above, counting each irrigation as a rain event, and only counting rain/irrigation events on days

¹ Jacobi, J.C., P.A. Backman, D.P. Davis, and P.M. Brannen. 1995. AU-Pnuts Advisory I: Development of a rule-based system for scheduling peanut leaf spot fungicide applications. Plant. Dis. 79:666-671.

² See <http://www.weather.gov/mdl/synop/gfs.php>

when peanuts were not protected by fungicide. “Not protected” is considered to be more than ten days after the last spray was applied. For example, say a grower accessed the tool on August 17. He indicates that he had last sprayed fungicide on August 1, irrigated on August 12, and that it had rained on August 4, 8, and 16. In this case only two rain days (Aug 12 and Aug 16) would be counted.

The current risk is then displayed, along with a spray recommendation. The recommendation to spray is based on the following table:

Risk	Days since last spray	Spray?
Hi	N/A	Yes
Medium	> 14	Yes
Medium	≤ 14	No
Low	N/A	No