NC STATE

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Peanuts 11-6-25 - Updated Forecast - Relative Risk of Peanut Freeze Damage

1 message

Daniel J Anco <danco@clemson.edu> Thu, Nov 6, 2025 at 12:15 PM
Cc: Daniel J Anco <danco@clemson.edu>, Kendall R Kirk <kirk2@clemson.edu>, Aaron Paul Turner <apturne@clemson.edu>

Updated freeze injury risk information included below

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From: Kendall R Kirk <kirk2@clemson.edu>
Sent: Thursday, November 6, 2025 12:11 PM
To: Daniel J Anco <danco@clemson.edu>
Cc: Aaron Paul Turner <apturne@clemson.edu>; David Jordan <dljorda2@ncsu.edu>
Subject: RE: Updated Forecast - Relative Risk of Peanut Freeze Damage

We've spent the morning running models to update forecasts and predictions of relative risks for freeze damage for digging dates that might occur through Saturday.

As an important reminder, the prior general "rule of thumb" for when to stop digging prior to a freeze event was 72 hours. Using this rule of thumb, peanuts should not be dug anywhere in SC after Friday evening. Research conducted last year at both Clemson (Aaron Turner / Kendall Kirk) and NC State (David Jordan) suggested that a better "rule of thumb" might be 96 hours. **Using the 96 hour rule of thumb, to be safe, peanuts should not be dug anywhere in SC after Thursday evening (tonight).** It's reasonable to expect that the older 72-hour rule of thumb may have been appropriate at one time, but with increasingly larger plants and yields, it's also reasonable to recognize that in-field drying takes longer now than it once did.

Since not all 72- and 96-hour intervals are created equal, we are developing a decision aid on the basis of a combination of forecasted kernel moisture content and air temperature. For instance, 96 hours of cool/overcast weather will not result in the same kernel moisture content as 96 hours of warm/sunny/windy weather. We sent out "relative risk levels" yesterday (1-10 scale) reflecting combinations of forecasted temperature and kernel moisture content. We've updated these values for today's forecasts and we've also adjusted the thresholds slightly, to best align with the 72- and 96-hour "rules of thumb." Below are the updated relative risks for likelihood to experience peanut freeze damage based on the latest forecasts and the updated criteria. The higher the risk level, the higher likelihood of experiencing freeze damage. Risk Level 1 = Low Risk. Risk Level 10 = High Risk.

Digging Termination	Blackville	Cheraw	Conway	Florence	Kingstree	Moncks Corner	Orangeburg	Sumter	Walterboro
Wed 11/5 Sunset	1	4	1	1	4	1	1	1	4
Thur 11/6 Noon	4	2	3	3	4	2	3	4	4
Thur 11/6 Sunset	4	4	3	4	4	3	4	4	4
Fri 11/7 Noon	7	7	5	7	7	5	7	7	7
Fri 11/7 Sunset	7	7	5	7	10	5	7	7	7
Sat 11/8 Noon	10	10	7	10	10	7	10	10	10
Sat 11/8 Sunset	10	10	7	10	10	7	10	10	10

Risk in the table above is reported as the maximum risk across the next two weeks. Risk was calculated at one hour intervals as one plus the product of the risk due to high moisture (0-3) and the risk due to low temperature (0-3).

Criteria for moisture risk was as follows:
<17%: Risk=0
17-19%: Risk=1
19-21%: Risk=2
>21%: Risk=3

Criteria for temperature risk was as follows:
>36 degF: Risk=0
34-36 degF: Risk=1
32-34 degF: Risk=2
<32 degF: Risk=3

For example, if kernel moisture content is predicted to be 18% (MC Risk = 1) at a time when the temperature is predicted to be 33 degF (Temp Risk = 2), then the freeze damage risk for that instance of time was calculated as 1+ (1x2) = 3 out of 10.

Caveats: This is the best information that we can provide at this time and farmers must please recognize that there are inherently many sources of possible error in making these estimations. Kernel moisture contents applied to develop these risk levels were based on models that are still under development. We're also still trying to better understand the relationships between kernel moisture content, air temperature, and freeze damage. Also, temperature in various positions of the field can vary as much as 5 degrees F or more, as was observed in one of our 2024 freeze damage tests. Furthermore, kernel moisture content at the time of digging is relatively unpredictable, ranging at least from 35% to 46%; moisture content at digging of 41.3% was used for the predictions listed here. Finally, the effects of rainfall after digging may not be well represented in our current models. If it rains, expect your risk to go up as compared to what's demonstrated here, since drying stalls and rewetting of the kernel may also occur.

We're still working to improve predictions and recommendations associated with freeze damage and we are grateful for the support of the SC Peanut Board and National Peanut Board in these efforts, which are led by Dr. Aaron Turner. Our latest models are active on the Peanut Field Drying Forecaster, which is linked here and below. Note: The tool currently uses the hour 0:00 as the start time on the date specified. So, if digging occurs at a later time in the day, for instance, noon, the starting moisture content must be adjusted to achieve a reasonable moisture content (e.g., 41.3%) at the time of digging. In our next update we plan to include a start time, in addition to the start date.

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