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Peanuts 11-5-25 - Estimated Relative Risk of Freeze Damage

1 message

Daniel J Anco <danco@clemson.edu> Wed, Nov 5, 2025 at 5:33 PM
Cc: Daniel J Anco <danco@clemson.edu>, Kendall R Kirk <kirk2@clemson.edu>, Aaron Paul Turner <apturne@clemson.edu>

Below is information on risk of peanut freeze damage from ongoing work conducted by Drs. Kendall Kirk and Aaron Turner. This coming Monday night (11/10) is anticipated to bring sub-30 F temps.

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Sent: Wednesday, November 5, 2025 4:39 PM
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Cc: Aaron Paul Turner <apturne@clemson.edu>
Subject: Estimated Relative Risk of Freeze Damage

Estimated Relative Risk of Peanut Freeze Damage as a function of digging termination time. (1=Low Risk; 10=High Risk)

Digging Termination	Blackville	Cheraw	Conway	Florence	Kingstree	Orangeburg	Sumter	Walterboro
Wed 11/5 Sunset	2	4	4	2	4	2	2	4
Thur 11/6 Noon	3	3	3	3	3	3	3	3
Thur 11/6 Sunset	3	3	3	3	4	3	3	3

We will try to send updates as soon as possible with predictions for digging dates into Friday and beyond. Note: if rainfall occurs, risks will increase. Preliminary data this year has show an increase in kernel moisture content of 2% for every 24 hours duration of generally continuous rainfall, although there are many factors at play.

The relative risks above are based on weather forecasts coupled with kernel moisture content predictions. We're still working on improving models for peanut kernel moisture content predictions, as well as better understanding kernel moisture contents and temperatures at which freeze damage is likely to occur. So, 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 calculations. For instance, 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.

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 (1-3) and the risk due to low temperature (1-3).

Criteria for moisture risk was as follows:
<15%: Risk=0

15-17%: Risk=1

17-19%: Risk=2

>19%: Risk=3

Criteria for temperature risk was as follows:

>37 degF: Risk=0

35-37 degF: Risk=1

33-35 degF: Risk=2

<33 degF: Risk=3

For example, if kernel moisture content is predicted to be 16% (MC Risk = 1) at a time when the temperature is predicted to be 34 degF (Temp Risk = 2), then the freeze damage risk for that instance of time was calculated as 1+(1x2) = 3 out of 10.

In some cases the max risk decreases for peanuts dug at sunset on Wednesday as compared to those dug on noon on Thursday. This is a result of nighttime temperatures forecasted in those areas on Wednesday night. So, the risk associated for each row in the table above is most appropriately associate with the peanuts dug at the listed time.

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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