



Management Alert 19-01

Southern Forest Nursery Management Cooperative

BE ALERT OF UPCOMING FREEZE INJURY CONDITIONS

This coming weekend January 19, 2019 will be the coldest weather the southern US has experienced this year. These cold temperatures are of concern for landowners who have recently planted or are in the middle of planting seedlings for reforestation. **Freeze injury or seedling death is a possibility.**

In the Auburn, AL area the forecasted low temperatures according to AccuWeather are: Sunday, 20°F, Monday 27°F and then drop again on Friday 20°F. For Central Mississippi low temperatures are Sunday, 20°F, Monday 25°F and again on Friday 23°F. For the central Georgia region the forecasted low temperatures are Sunday, 19°F, Monday 23°F and again on Friday 25°F.

The accumulated chilling hours for a central Georgia location show that from the 1st of November 2018 until the 14th of January 2019 there are 519 accumulated hours (Figure 1). Accumulation of chill hours is correlated with freeze tolerance to seedlings. It needs to be emphasized that there is no set number of chill hours above which freeze injury will not occur.

Points to Consider:

1. Despite the number of accumulated chilling hours to date, root system of southern pines never go dormant.
2. Seedlings should not be planted when the temperatures are near freezing. We would not recommend any planting of new seedlings until the daily highs are above freezing and the low temperatures have moderated.
3. Recently planted seedlings have not begun to grow new roots and the soil around the root zone may not have properly settled around the seedling.
4. A positive point is that the weather is expected to come through accompanied by rain that will help moderate the soil temperatures.
5. The impact of these temperatures may not fully be known until seedling growth begins in the spring. Landowners should be diligent to check seedling survival for several weeks beginning in the spring.
6. If we have a period of moderate temperatures over the next few month, it may be possible to check seedlings for freeze injury. Follow the steps below

Keep Alert:

1. For nurseries monitor your soil moisture during warm nights and days and irrigate a couple of days before the temperatures drop below 25°F. Moisture in the soil will help insulate the seedling roots.
 2. Following a possible freeze injury event, monitor seedlings by outplanting at the nursery 10-20 seedlings from any families you consider freeze sensitive. Keep these seedlings until at least June of next year. This will provide an indication of whether the seedlings shipped from these same families may have freeze injury.
 3. Following a possible freeze injury event, plant 5-10 seedlings from freeze sensitive families in 1 gallon
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pots and keep in warm location. After 7 days, gently scrape the bark 2" above and below the root collar to check for freeze injured brown tissue.

How to Check for Freeze Injury for Outplanted Seedlings:

1. Wait for 1-2 weeks or until the temperatures have warmed up. Repeat again in several more weeks to confirm.
2. Scrape the bark away from the stem from about 2" above the root collar down into the root system.
3. Look for light brown colored tissue which is an indication of freeze injury (Figure 2).
4. Many times the brown coloration will be limited to one side of the stem. These seedlings may survive if environmental conditions are favorable, however, first year growth will be impacted.
5. If the brown coloration covers the entire circumference of the stem, the seedling will most likely die.

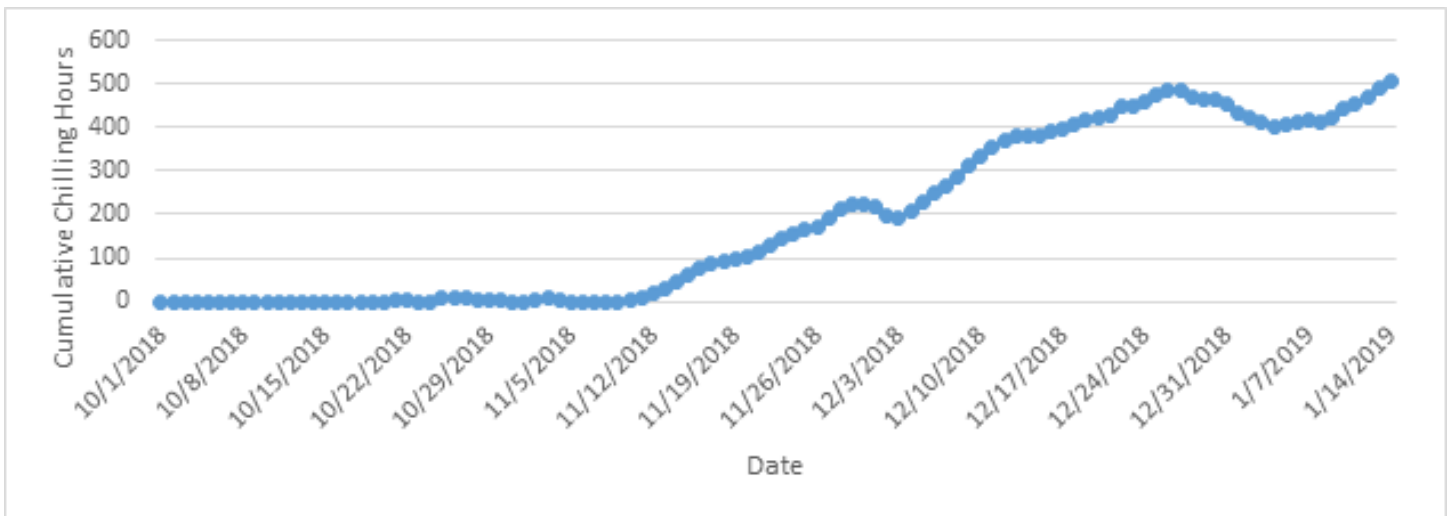


Figure 1. The accumulated chilling hours for a central Georgia location show that from the 1st of November 2018 until the 14th of January 2019 there are 519 accumulated hours.



Figure 2. Light brown colored tissue which is an indication of freeze injury