Diagnostics and Nursery News

Ryan Nadel

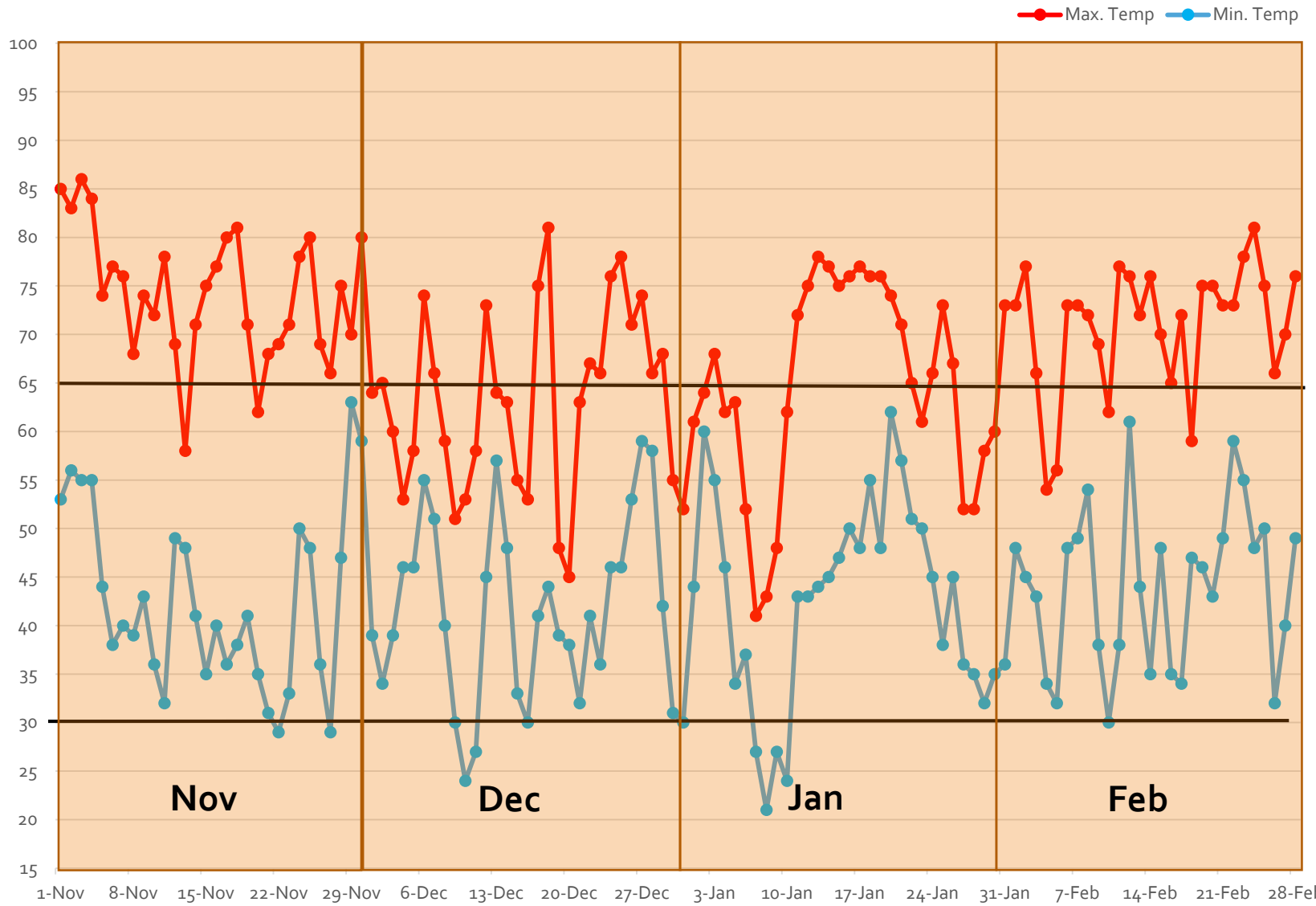
SOUTHERN FOREST NURSERY MANAGEMENT COOPERATIVE

Seedling quality

Nursery Coop

- SFNMC has been receiving calls about some problems with seedling quality for last season.
- Numerous outplanted seedlings had turned orange/ brown in color with underlying green foliage present.
- Problems may be linked to the weather in late 2016 and early 2017
  - Temperature
  - Rainfall

Temperature



- **November**

93% of days had a maximum temperature above 65 °F

- **December**

45% of days had a maximum temperature above 65 °F

- **January**

55% of days had a maximum temperature above 65 °F

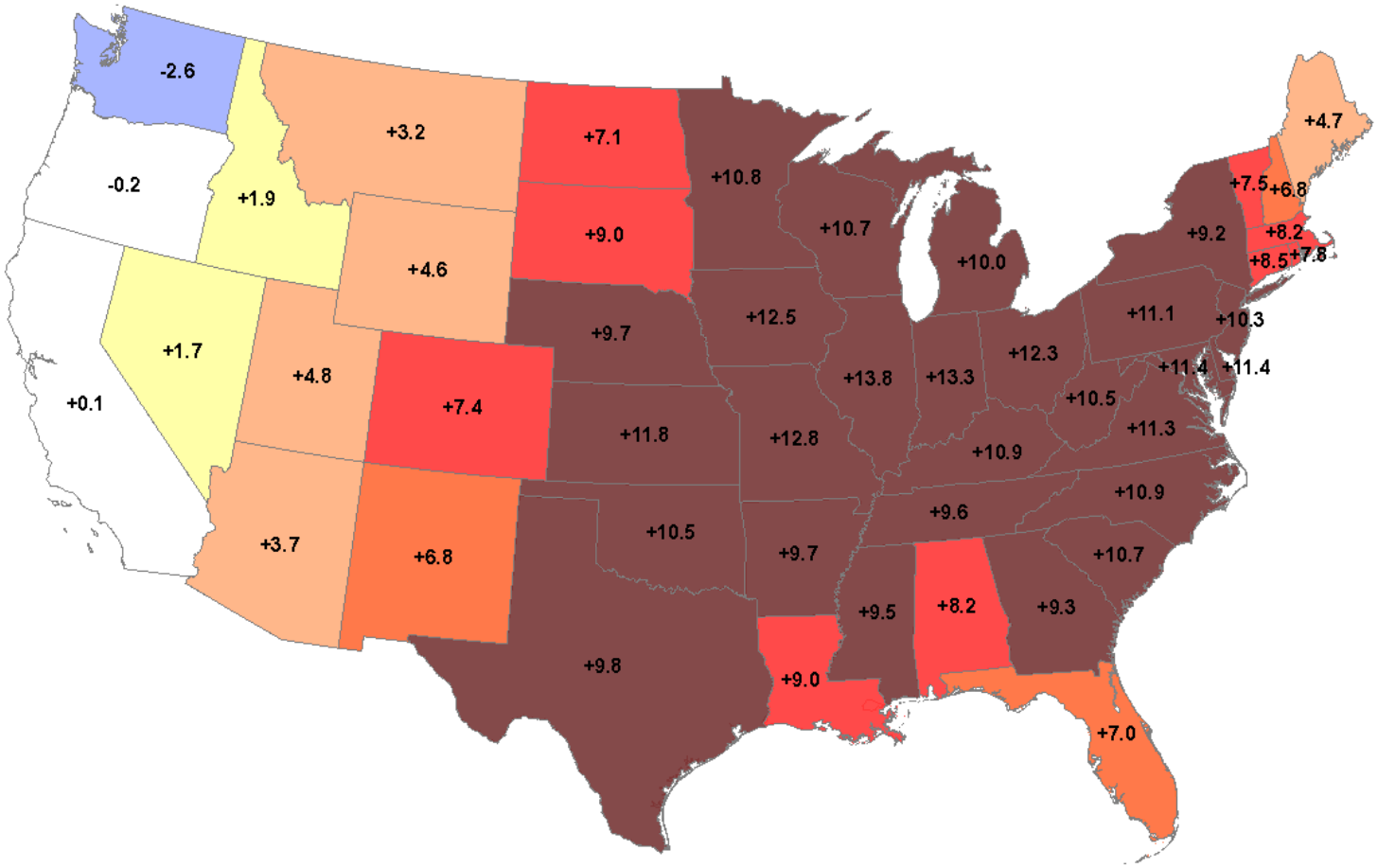
- **February**

86% of days had a maximum temperature above 65 °F

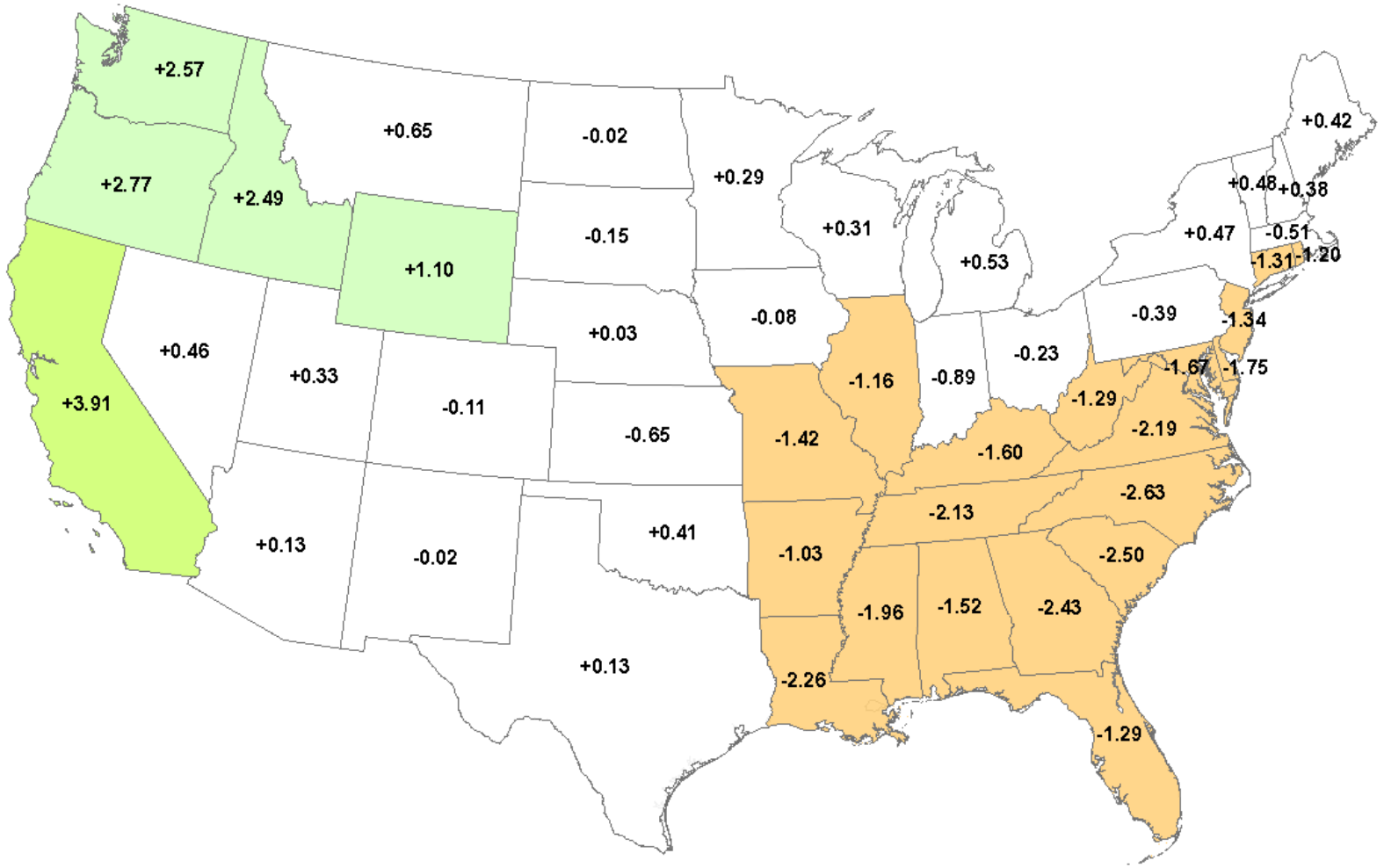
Chilling hours from a central Georgia location for growing season

	Number of chilling hours (T <= 45 °F)				
	2012-2013	**2013-2014**	**2014-2015**	**2015 - 2016**	**2016-2017**
November	188	204	299	**63**	**78**
December	212	270	215	**95**	189
January	214	509	394	344	**174**
February	320	288	436	247	**78**

Statewide abnormalities for February using a 100 year average for maximum temperature (°F)



Statewide abnormalities for February using a 100 year average for precipitation



Management Alert 2017 - 01

Nursery Cooperative MANAGEMENT ALERT 2017 - 01

Record Heat and Drought Impact on Seedling Outplanting Growth and Survival

Over the past week we have received numerous outplanted seedling samples that are mostly orange/brown in color with underlying green foliage present. The orange colored foliage indicates that these seedlings have dried out and likely suffered wind and/or heat desiccation. When looking at the weather data from areas where these seedlings were planted, in all instances warm temperature often coupled with high wind speeds were likely to have caused these symptoms. When looking at the maximum temperatures across the Southeastern U.S. for February and March, in addition to the low precipitation levels at the same time, suggests that this is likely to be a regional issue.

Although the foliage of the seedlings is mostly dead, the underlying foliage of the majority of seedlings is still green in color, white root tips are usually present and cambial tissue still green indicating that the seedlings have not yet died and may survive with adequate rainfall. The seedlings, however, may be unable to survive additional moisture or temperature stress as they need time for the green needles to photosynthesize and produce food for the seedlings and continue root and shoot elongation. To test this hypothesis we have outplanted and watered a few of the seedlings that we received and after sufficient moisture we expect these to continue to grow.