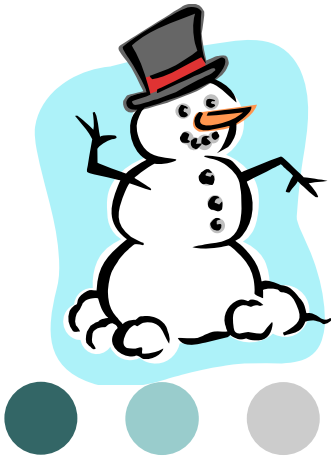


# Freeze Study

This study was funded by USFS

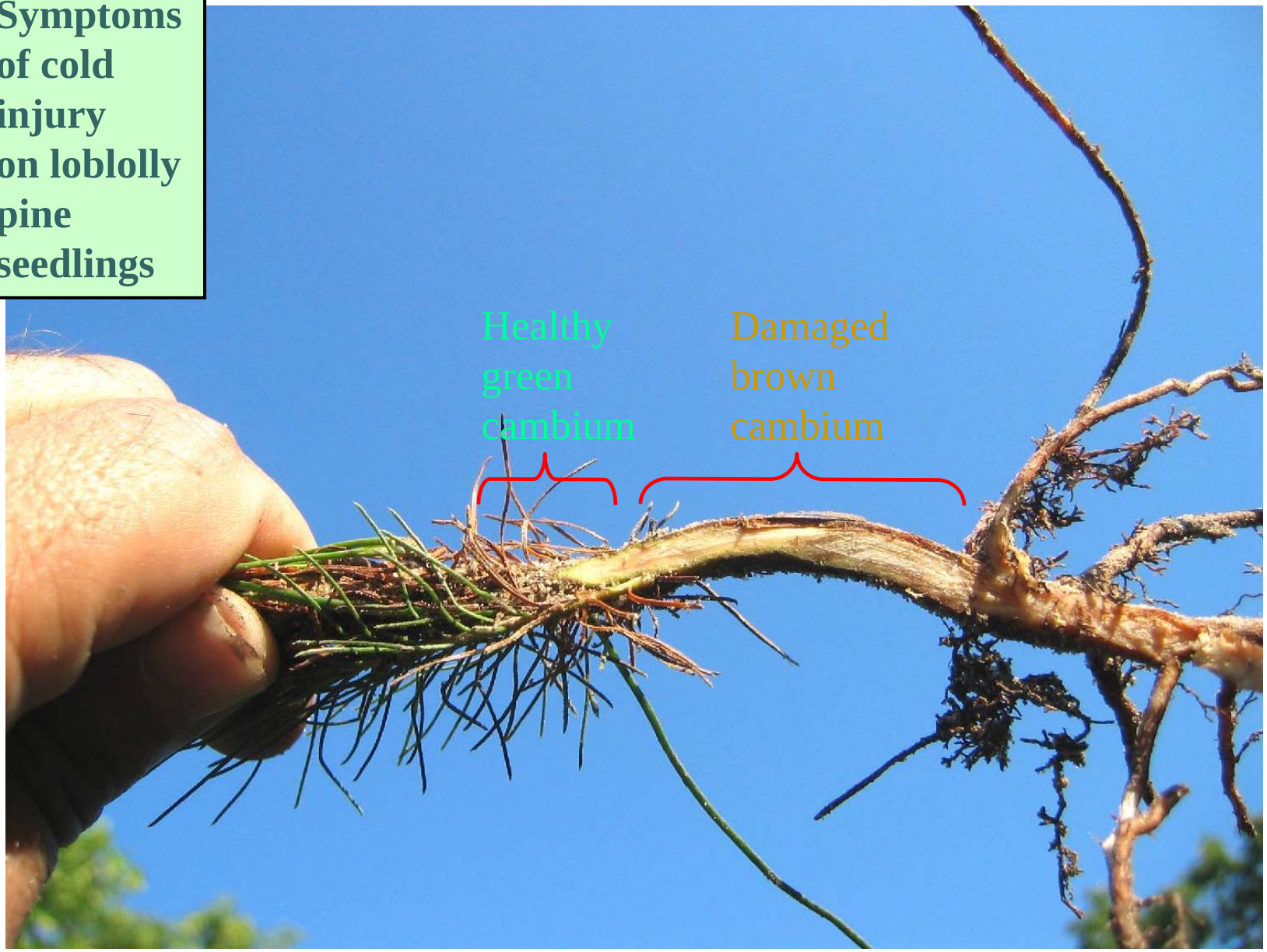
# Study Specifics

- Loblolly Family 7-56 susceptible to freeze damage.
- Seedlings in a nursery become acclimated to cold temperatures.
- However, susceptible families such as 7-56 can become deacclimated when a period of warm temperatures occur following acclimation.

# Study Specifics

- 7-56 grown for this study @ TN & VA nurseries.
- Objective was to see how long it takes 7-56 to deacclimate after becoming acclimated to the cold.

**Symptoms of cold injury on loblolly pine seedlings**




From International Paper Presentation

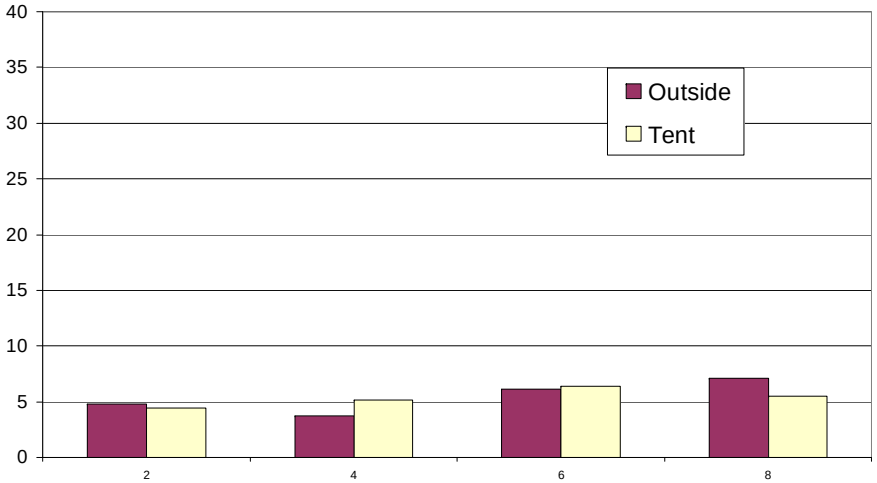
# Study Specifics

- Seedlings were subjected to heat (deacclimation) for 2 – 8 days.
- Samples of seedlings were pulled at day 2, 4, 6 and 8 and sent to Purdue Univ. to test for cell electrolyte leakage.

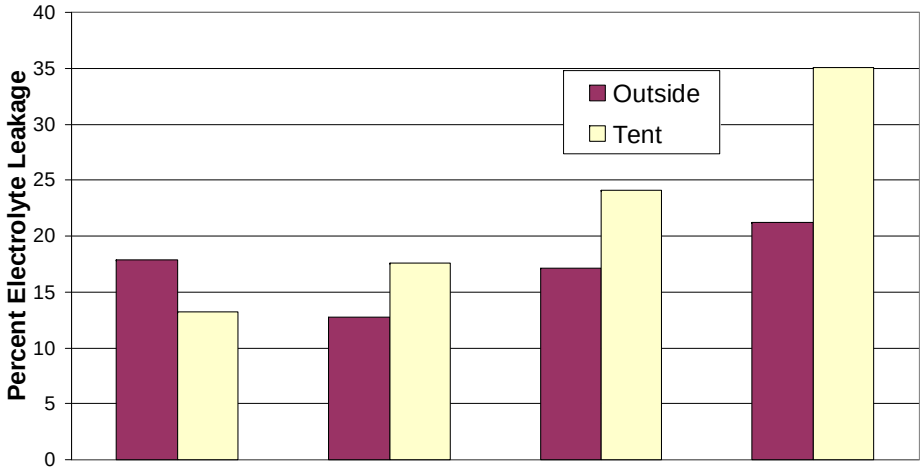
# Problems

- Maintaining consistently warm temperatures at night
  - Heater problems
  - 10° night time temperatures
- We plan to repeat this study this year and rather than heat in a tent we will bring them back to AU and place in a greenhouse after cold acclimation.

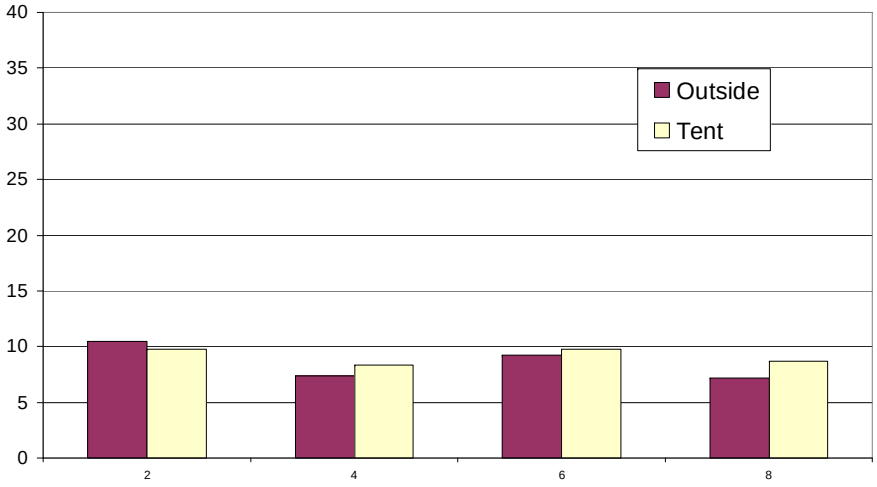
## TN Shoot at -8° C



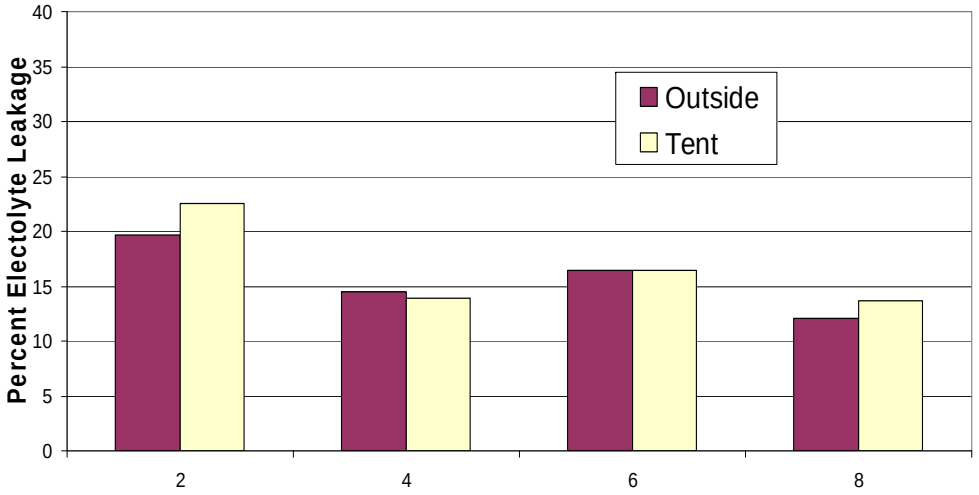

## TN Roots at -8° C




## VA Shoot at -8° C

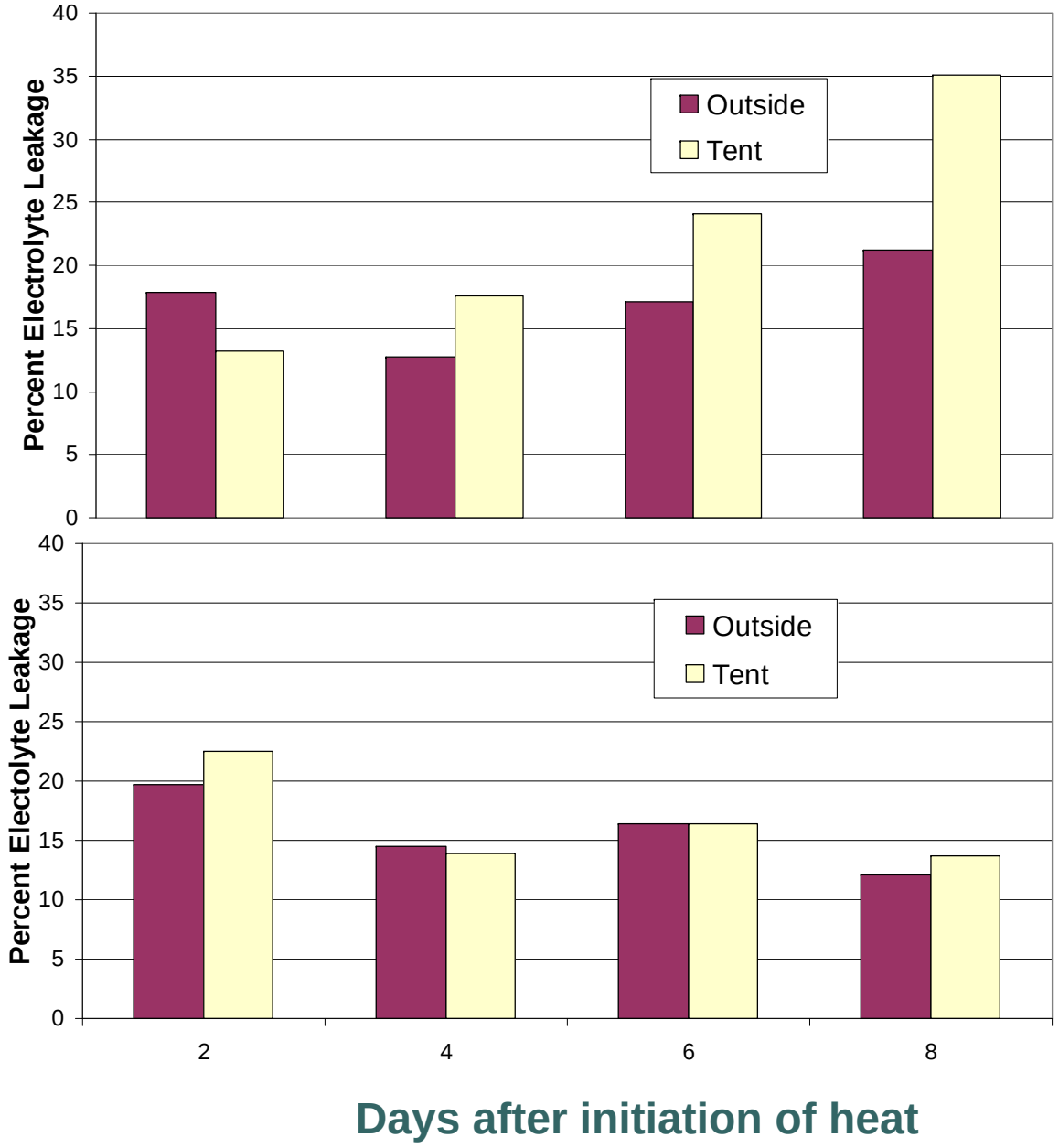



## VA Roots Shoot at -8° C

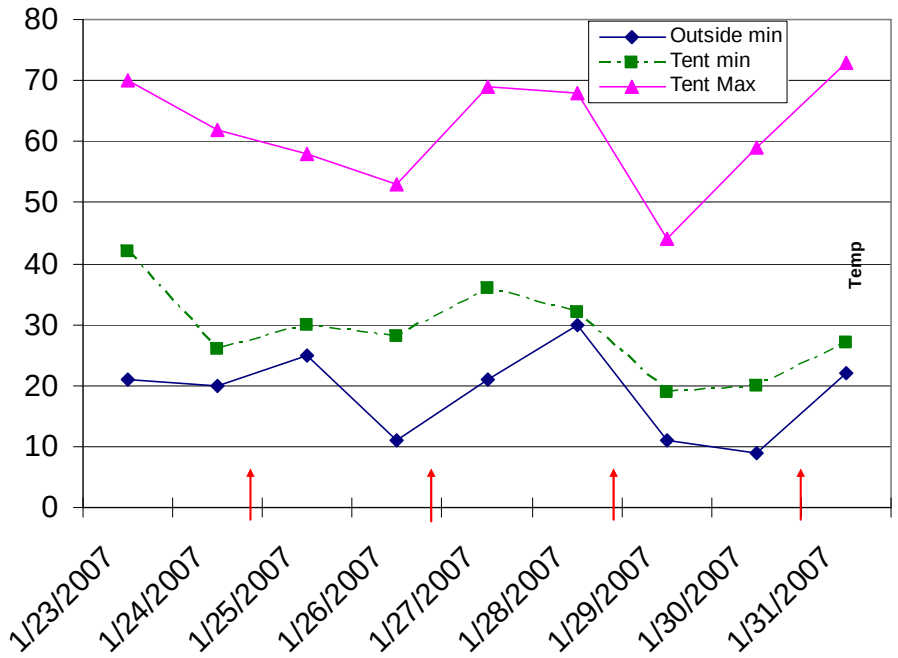


**Tennessee Roots at -8° C**

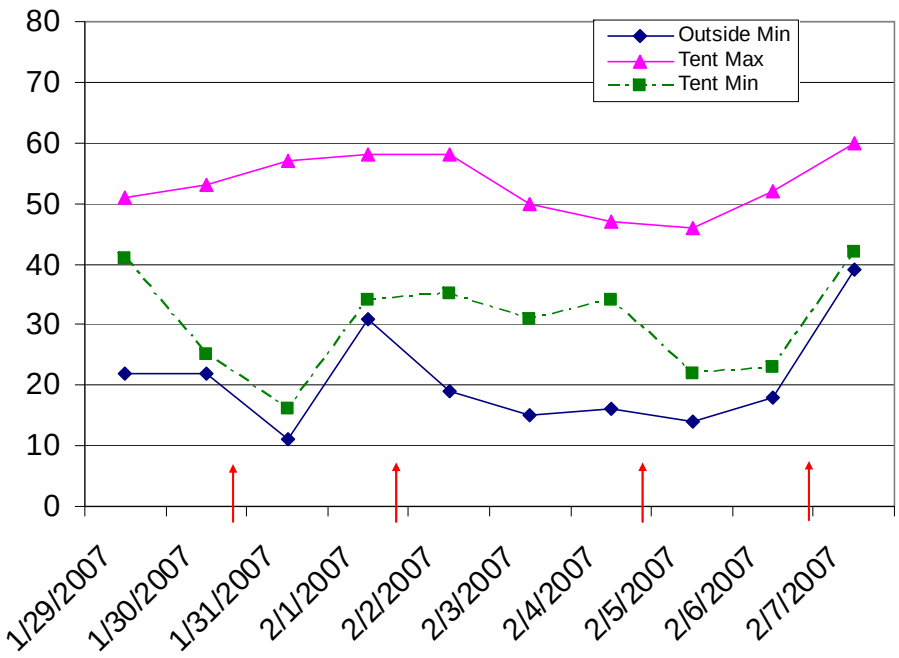
**Virginia Roots at -8° C**



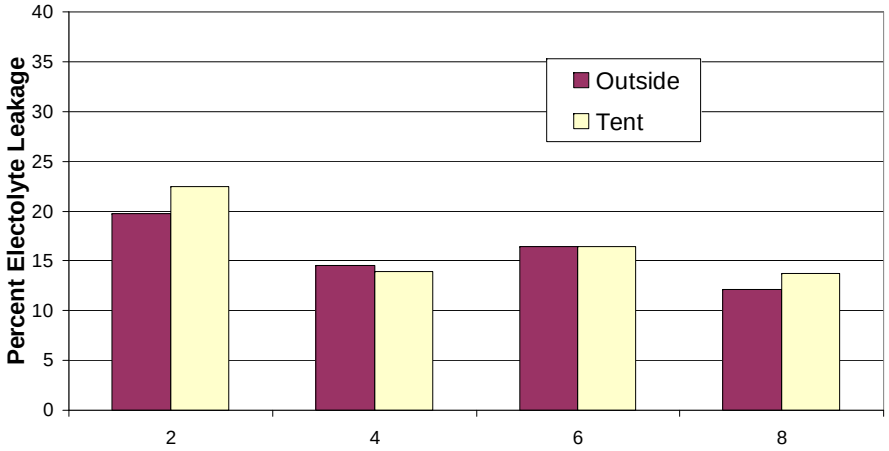
## Va Temperatures



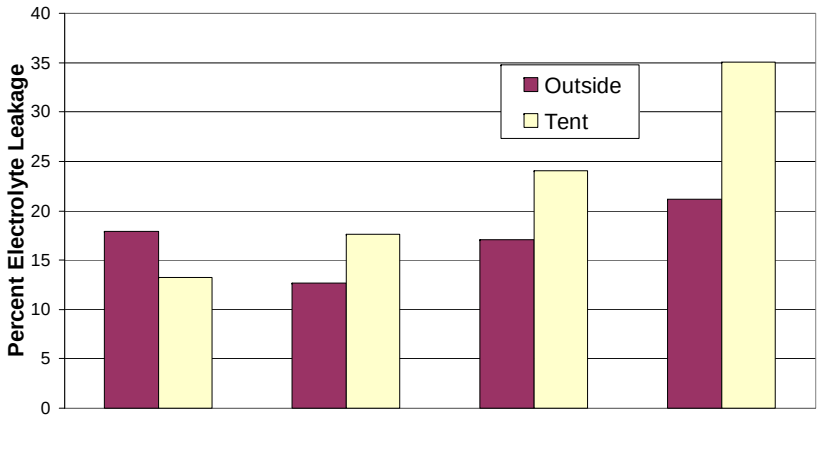

## TN Temperatures



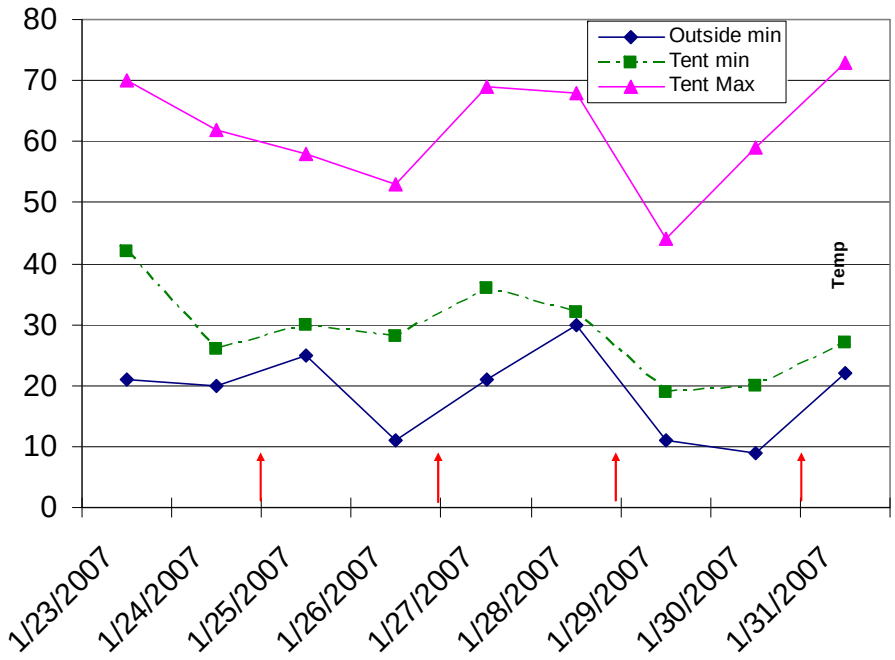
## VA Root Electrolyte Leakage




## TN Root Electrolyte Leakage




## VA Temperatures




## TN Temperatures