

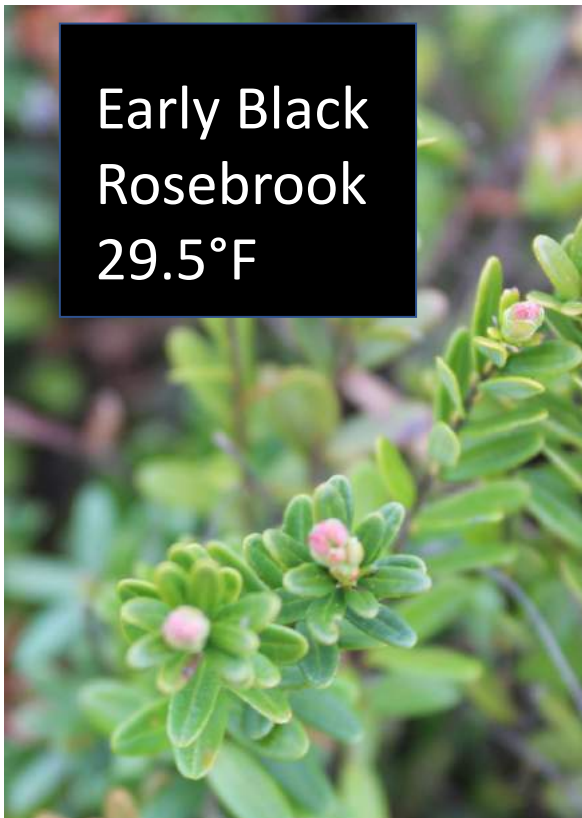
May 23, 2019

- ALWAYS check the tolerance at your bog. A fact sheet showing all spring tolerances is available in the fact sheet section of the Cranberry Station website. Hard copies are available at CCCGA and at the Station.
- At Rosebrook Bog and at State Bog, most buds for all varieties were at Bud Elongation stage or early Roughneck (~1/4 inch new growth). Based on research in Wisconsin, by May, one can expect **all buds to have similar tolerance to those with the most advanced appearance**. In other words, even buds that have not begun to elongate will exhibit the same tolerance as the elongated ones.
- At Elongation Stage, the bud begins to grow upward. When the bud is observed from above, the bud may appear cabbage-like. However, a side view shows the outward/upward expansion. Once the expansion reaches a length of ~1/4 inch, the shoot has reached the Roughneck stage.
- Once buds have reached the Elongation Stage and associated tolerance (we saw this on May 17<sup>th</sup> this year), the tolerance advances a stage after 5-7 days even if there is no visible change in appearance. This information comes from research in Massachusetts. **Based on this information, all varieties have been assigned a tolerance of 29.5°F.**
- Bud Elongation and Roughneck tolerance for Stevens, Ben Lear and new hybrids is 29.5°F. Bud Elongation tolerance for Early Black and Howes is 27°F; for those varieties, Roughneck tolerance is 29.5°F. Remember: once Cabbage Head Stage is reached, bud tolerance advances every 5-7 days even if appearance does not change.
- On-bog photos by Giverson Mupambi; close-ups by Carolyn DeMoranville.
- This is the final frost check for the spring season.

Ben Lear  
Rosebrook  
29.5°F



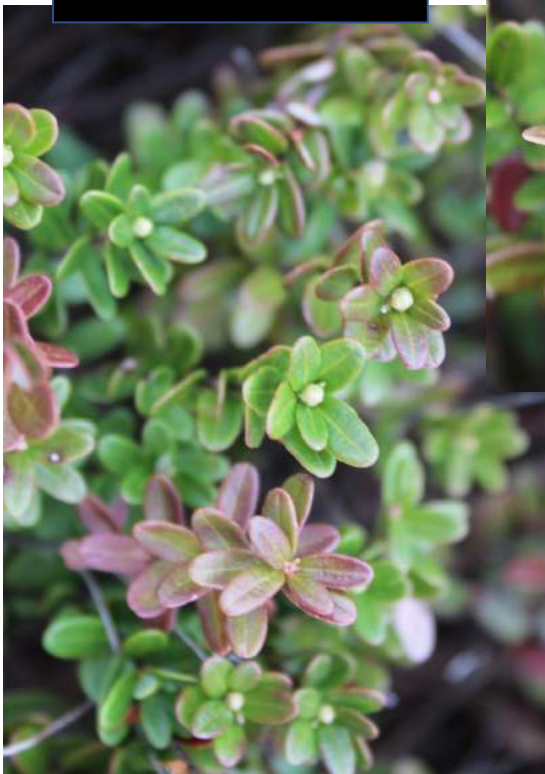
Early Black  
Rosebrook  
29.5°F



Stevens  
Rosebrook  
29.5°F



Howes  
Rosebrook  
29.5°F



Additional bud photos from State Bog May 23, 2019

All are at Elongation – Early Roughneck Stage

Early Black 29.5°F

Howes 29.5°F



Stevens 29.5°F



Buds have grown upwards/outwards.  
The bud may still resemble a cabbage from above, but a side view shows the outward growth.

Additional bud photos from State Bog May 23, 2019

All are at Elongation - Early Roughneck Stage

Ben Lear 29.5°F



This is a vegetative shoot

Demoranville 29.5°F



Crimson Queen 29.5°F



Mullica Queen 29.5°F

