

May 10, 2018

- ALWAYS check the tolerance at your bog [tolerance photos for all stages are shown at the end of this file].
- At Rosebrook Bog and at State Bog, all varieties had many buds at Bud Elongation stage. 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.
- Once buds have reached the Cabbage Head Stage and associated tolerance, the tolerance advances a stage every 5-7 days even if there is no visible change in appearance. This information comes from research in Massachusetts.
- At Elongation Stage, the bud begins to grow upward. Early in this stage, when the bud is observed from above, the cabbage-like appearance remains. However, a side view shows the outward/upward expansion.
- Bud Elongation tolerance for Stevens, Ben Lear and new hybrids is 29.5°F. Bud Elongation tolerance for Early Black and Howes is 27°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 Erika Saalau Rojas; close-ups by Carolyn DeMoranville.
- Next check is scheduled for May 16<sup>th</sup>.

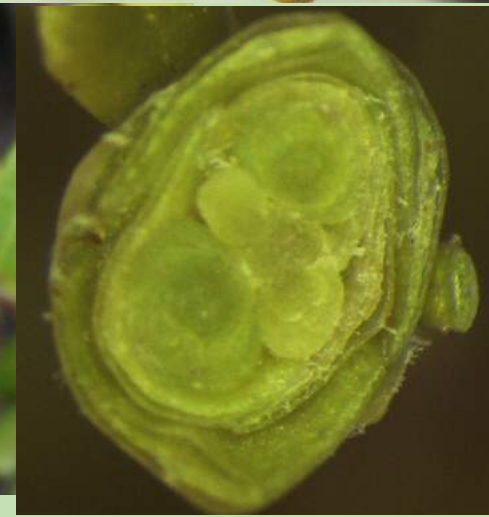
**Ben Lear 29.5°F  
Bud Elongation  
Stage**



**Stevens 29.5°F  
Early Bud Elongation  
Stage**



**Early Black 27°F**  
**Early Bud Elongation**  
**Stage**

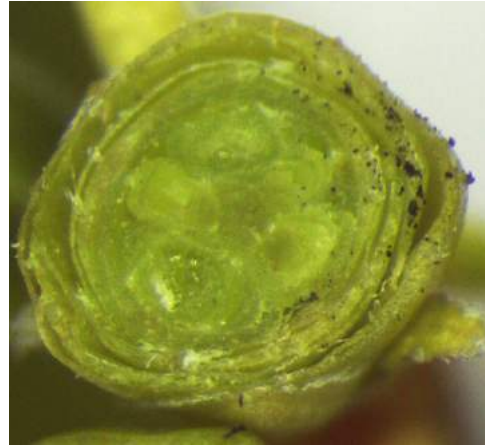


**Howes 27°F  
Early Bud Elongation  
Stage**

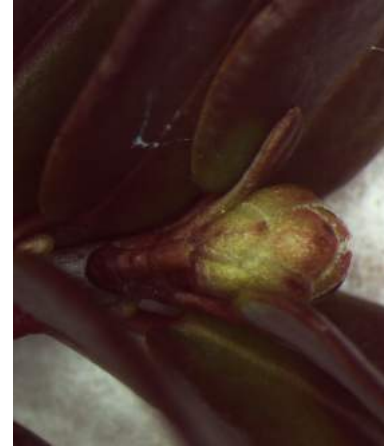


Additional bud photos from State Bog May 10, 2018 All are at **early** Bud Elongation Stage

Early Black 27°F



Howes 27°F



Stevens 29.5°F



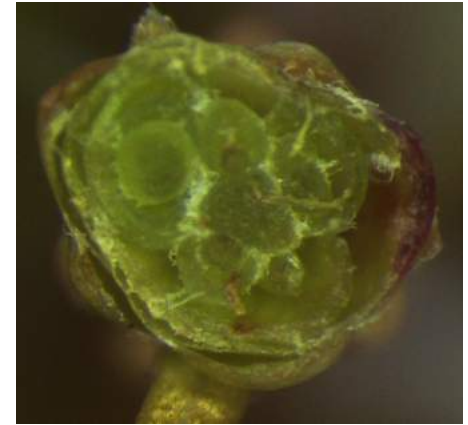
From above, Early Black, Howes, and Stevens buds look like cabbage heads, but a side view shows the bud beginning to grow outward. Since these varieties were at Cabbage Head tolerance 7 days ago, their tolerance should now be advanced regardless of appearance.

Additional bud photos from State Bog May 10, 2018 All are at **Bud Elongation Stage**

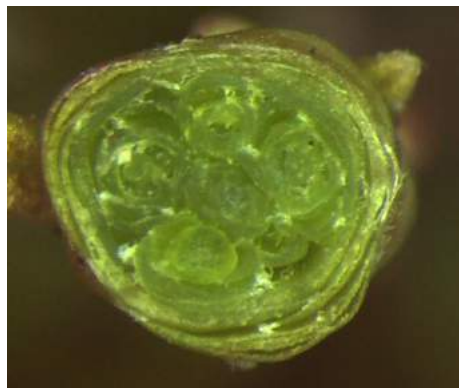
Ben Lear 29.5°F



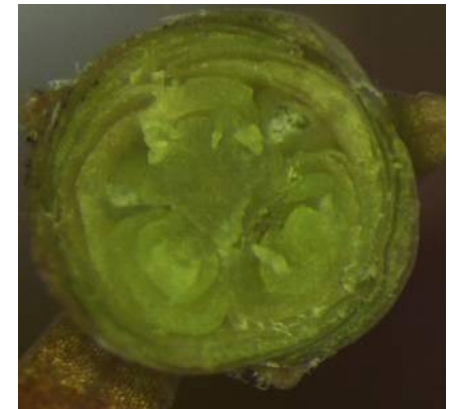
Demoranville 29.5°F



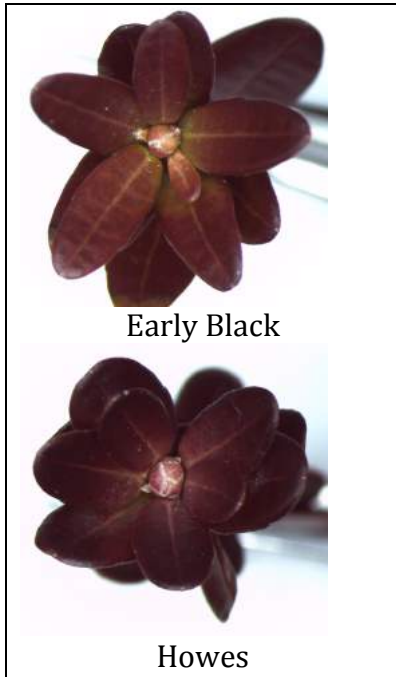
Crimson Queen 29.5°F



Mullica Queen 29.5°F



Spring Frost Tolerances - Early Black and Howes



Spring Dormant 18°F



White Bud Stage 20°F



Bud Swell Stage 22°F



Cabbage Head Stage 25°F



Bud Elongation 27°F



29.5°F



Spring Frost Tolerances - Ben Lear and Stevens

Tolerances for large-budded hybrids are assumed to be similar to these. Crimson Queen, Mullica Queen, and Demoranville have been observed to develop in a similar timeline as Ben Lear.

