April 12, 2017

- ALWAYS check the tolerance at your bog [tolerance photos for all stages are shown at the end of this file]

- All cultivars at Rosebrook are at the spring dormant stage

- Buds were tight and red or tinged with red

- Spring dormant tolerances are 18°F for Early Black and Howes; 20°F for Stevens, Ben Lear and new hybrids

- Buds observed at State Bog on the 12th were similar to those observed at Rosebrook

- Next check scheduled for April 18th
Frost check at Rosebrook on April 12, 2017

Ben Lear

Stevens

Early Black

Howes

UMass Cranberry Station 4.12.17
Buds at State Bog
April 12, 2017
Tolerance 20°F

Crimson and Mullica appear similar to Ben Lear

Demoranville looks slightly less red but in 2016 tests, had similar tolerance to Ben Lear

UMass Cranberry Station 4.12.17
Frost tolerance check protocol 2017

• Tolerance check team:
  Glenn Reid, Carolyn DeMoranville [CCCGA frost committee]
  Anne Cote, Patti Silvia [CCCGA frost program]
  Erika Saalau Rojas, Peter Jeranyama [UMass Cranberry Station]
  Other growers attend from time to time

• Visit Rosebrook Bog in Wareham:
  Observe buds of Early Black, Howes, Ben Lear, Stevens
  Take in-field photographs, collect buds to bring to the lab
  Agree on current frost tolerance

• In the lab at the Station:
  Take close up photos of buds
  Cut buds and photograph
  Post photos and tolerance report to the UMass Cranberry Station web site
Spring Frost Tolerances - Early Black and Howes

<table>
<thead>
<tr>
<th>Stage</th>
<th>Temperature</th>
<th>Variety 1</th>
<th>Variety 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Dormant</td>
<td>18°F</td>
<td>Early Black</td>
<td>Howes</td>
</tr>
<tr>
<td>White Bud Stage</td>
<td>20°F</td>
<td>Early Black</td>
<td>Howes</td>
</tr>
<tr>
<td>Bud Swell Stage</td>
<td>22°F</td>
<td>Early Black</td>
<td>Howes</td>
</tr>
<tr>
<td>Cabbage Head Stage</td>
<td>25°F</td>
<td>Early Black</td>
<td>Howes</td>
</tr>
<tr>
<td>Bud Elongation</td>
<td>27°F</td>
<td>Early Black</td>
<td>Howes</td>
</tr>
<tr>
<td>Roughneck Stage</td>
<td>29.5°F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hook Stage (L), Bloom (R)</td>
<td>29.5°F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.