Frost tolerances - Spring 2013
April 11, 2013

On April 10-11, buds were examined from the following cultivars: Early Black (EB), Howes (H), Ben Lear (BL), Stevens (ST), Gregleski #1 (GH), Demoranville (DE), Mullica Queen (MQ), and Crimson Queen (CQ). These buds were collected at State Bog in East Wareham and Rosebrook Bog in Wareham. All cultivars had buds that were at spring dormant stage, tight and red. Cut buds of EB showed some interior greening.

At the spring dormant stage tolerance for EB and H is 18°F; tolerance for BL and ST is 20°F. Based on appearance, new hybrids should be assumed to have the same tolerance as BL.

We next plan to check tolerance and update photos on April 16.

ALWAYS CHECK THE TOLERANCE ON YOUR BOGS.

If you suspect you have had conditions on your bog that would caused frost injury, you can examine buds to look for damage - but wait for at least 24 hours after the frost event. The pictures of cut buds below show what an undamaged bud looks like when you cut a cross-section. Take an upright and carefully remove the upper leaves to expose the bud. Then lay the upright on a flat surface and use a razor blade to cut down through the bud - cut about half way between the tip and the base of the bud. Now pick up the upright, and using a hand magnifier, look down into the bud. Compare to the healthy bud photos. Damage would appear as brown or black areas. As we go through the season and find damaged buds, damage photos will be included.
H spring dormant, 18°F, State Bog 4/10

H spring dormant, 18°F, Rosebrook 4/11

BL spring dormant, 20°F, State Bog 4/10

BL spring dormant, 20°F, Rosebrook 4/11

ST spring dormant, 20°F, State Bog 4/10

ST spring dormant, 20°F, Rosebrook 4/11. Note multiple buds.
GH spring dormant, 20°F, State Bog 4/10

MQ spring dormant, 20°F, State Bog 4/10

DE spring dormant, 20°F, State Bog 4/10

CQ spring dormant, 20°F, State Bog 4/10
Cut EB bud. 4.10 State Bog. Note internal greening.

EB cut bud. 4.11 Rosebrook.

Cut H bud. 4.10 State Bog. Note internal structures retain red dormant color.

Cut H bud. Collected 4.5

BL cut bud. 4.11 Rosebrook.

ST cut bud 4.11 Rosebrook.
In the photos below, taken in 2012, the buds were more advanced. They are included here to show the internal structures of the bud more clearly.

**2012 photo.** Cut bud, round structures around the center are floral initials (3 can be seen here) - they will become flowers. Solid center will become the leaves above the flowers (vegetative meristem). Outer 'ring-like' structures are the bud scales - they are protecting the center structures.
2012 photo. In this photo, the cut is closer to the tip and you can see the floral initials look more 'bead-like'. In some Ben Lear buds examined, the floral initials were turning pink (more advanced).