Vaccinium corymbosum Ericaceae family

Highbush blueberry, northern highbush blueberry, southeastern highbush blueberry, Maryland highbush blueberry, black highbush blueberry, American blueberry, New Jersey blueberry, rabbiteye blueberry, swamp blueberry, tall blueberry, tall huckleberry, mayberry, whortleberry

Description: *Vaccinium corymbosum* is a slow-growing, multi-stemmed, occasionally monoecious, deciduous, shrub to small tree. Flowering occurs during leaf development. It cross-pollinates, but is also self-fertile. Pollination occurs primarily by bees. Reproduction is primarily by seeds. Following disturbance or damage, sprouting can occur from the root crown or by root sprouting. Layering also occurs in limited areas.

Variation: *Vaccinium corymbosum* is a complex; having high variability and polyploidy, and hybrid combinations. *Vaccinium corymbosum* hybridizes with *Vaccinium angustifolium*. Some taxonomists disagree that all these variations should be placed under one name; in one system it was proposed to divide out into 12 species. *Vaccinium corymbosum* has a large number of cultivars for commercial fruit and a few cultivars in the horticultural trade used for landscaping.

Size: Grows 5-13 ft. (1.5-4 m) tall.

Stems: Multi-stemmed; erect or ascending.

Leaves: Leaves alternate. Leaf blades/lamina simple; narrowly elliptic to ovate; 0.8-3.5 in. (2.2-8.9 cm) long; 0.6-1.7 in. (1.5-4.3 cm) wide; margins entire to serrate, ciliate; apex acuminate; upper surface slightly waxy, yellowish green to dark yellowish green; lower surface light yellowish green, occasionally pubescent on veins; petiolate, 0.1-0.2 in. (0.2-0.4 cm) long, glabrous or with short hairs, moderately dense.

Inflorescence: A corymb/cluster; axillary; 5-17 flowers. Peduncle absent, rachis present; 0.1-0.6 in. (0.3-1.4 cm) long; bracts present, sessile, upper surface violet-red or light greenish yellow to light yellow, narrowly oblong or oblanceolate or obovate; 0.1-0.2 in. (0.3-0.4 cm) long; 0.04-0.08 in. (0.1-0.2 cm) wide. Pedicel 0.2-0.3 in. (0.4-0.7 cm) long; glabrous. Bracteoles 2; sessile; 0.1 in. (0.3 cm) long; 0.1-0.3 mm wide; at base of pedicel.

Flowers: Flowers perfect; small; urn-shaped/bell-shaped; 0.2-0.5 in. (0.4-1.2 cm) long; 0.2 in. (0.4-0.5 cm) wide; calyx of fused sepals, sepals 5, campanulate, light green to blue-green; corolla of fused petals 5, white to pink-tinged, deciduous; pistil 1; carpels 5; stigma 1, not persistent; nectar disk present; stamens 10.

Fruit: Berry; 0.2-0.5 in. (0.5-1.2 cm) in diameter; fleshy and juicy; blue to blue-black; glabrous; many-seeded. Edible and sweet.

Seeds; 10-16 (highly variable) per fruit; orange-red to orange to yellowish orange; 0.04-0.08 in. (0.1-0.2 cm) long; 0.9-1 mm wide.

Bark: Bark smooth to shreddy, dark reddish orange or dark orange or dark yellowish orange or light yellowish or reddish violet. Old stems gray-brown, thinly furrowed. Twigs are yellow green or dark reddish orange or dark orange or dark yellowish orange or light yellowish orange or reddish orange; warty; glabrous or with short hairs moderately dense to glabrescent.

Roots: Roots are fibrous. Although, a few isolated populations produce rhizomes.

Habitat: *Vaccinium corymbosum* prefers moist or wet peat, having moderate to high acidity; around marshes, swamps and bogs, lakes, ponds, streams, flood-prone sites, floodplains, sheltered slopes, ravines, and open areas of moist woodlands. It grows best on hummocks or raised bogs where the soils are moist, acidic, well-aerated, and highly-organic. It is found in full sun to partial shade, but does is intolerant of shade.

Species distribution in US states: AL, CT, DC, DE, GA, IL, IN, KY, LA, MA, ME, MI, MS, NC, NH, NJ, NY, OH, PA, RI, SC, TN, TX, VA, VT, WA, WI, WV

Species images:

Whole plant:
http://www.hort.uconn.edu/Plants/v/vaccor/vaccor1.html
http://biology.burke.washington.edu/herbarium/imagecollection.php?ID=6483, then search for species

Bark:
http://www.cnr.vt.edu/DENDRO/dendrology/syllabus2/factsheet.cfm?ID=583
http://www.duke.edu/~cwcook/trees/vaco.html

Leaf:
http://www.cnr.vt.edu/DENDRO/dendrology/syllabus2/factsheet.cfm?ID=583
http://botany.cs.tamu.edu/FLORA/dcs420/b/hdw08069971s.jpg
http://msuplants.com/images/Vaccinium/Vaccicory_LF02_Aug27.jpg
underside:

http://www.duke.edu/~cwcook/trees/vaco.html

Colored leaves:
http://www.hort.uconn.edu/Plants/v/vaccor/vaccor1.html
http://www.wildflower.org/gallery/result.php?id_image=3968

Buds:
http://www.cnr.vt.edu/DENDRO/dendrology/syllabus2/factsheet.cfm?ID=583
http://msuplants.com/images/Vaccinium/Vaccicory_HT07_Feb22.jpg
http://www.duke.edu/~cwcook/trees/vaco.html

Inflorescence:
http://www.hort.uconn.edu/Plants/v/vaccor/vaccor1.html

Flowers:
http://caliban.mpiz-koeln.mpg.de/~stueber/mavica/high/1000/00697.jpg
http://msuplants.com/images/Vaccinium/Vaccicory_OF07_May28.jpg

Fruit:
developing:
http://botany.cs.tamu.edu/FLORA/dcs420/b/hdw08069965s.jpg
http://www.cnr.vt.edu/DENDRO/dendrology/syllabus2/factsheet.cfm?ID=583
mature:
http://www.duke.edu/~cwcook/trees/vaco.html

Expected timing of growth stages:

Germination: In its northern distribution seeds germinate in the autumn (following dispersal); in the southern distribution seeds germinate in the winter (following spring dispersal).

Flowering: February-June, depending on location. In the north, flowering is synchronous and lasts about 25 days (early May to late June); in the south flowering occurs sporadically over a 2-3 month period (mid-February to early May).

Bud break/Leaf out: *Need info.

Leaf/canopy development: *Need info.

Fruit ripening: April-November. As with flowering, and because fruiting ripening initiates about 62 days after flowering, fruiting is spread over time in the south (April-November) and is synchronous in the north (July-August).

Seed dispersal: Late March-June in the southern part of distribution.

Leaf coloration: *Need info.

Leaf fall: *Need info.

Phenophases to be monitored for NPN:

Leaf out

- *First leaf*
  In at least 3 locations on the plant, the very first green tip of a young leaf has visibly moved out of the leaf bud.

Flowering

- *First flower*
  In at least 3 locations on the plant, a flower has opened completely. Flowers are considered 'opened' when the reproductive parts are visible between unfolded or opened flower parts.

- *Full flower* **[Intensive only]**
  The plant has reached its peak floral display. This occurs when half (50%) of the flowers on the whole plant have opened completely.

- *Last flower*
  The last visible flower has opened completely and is still fresh.

Leaf elongation

Note: These measures can be difficult to estimate without a few seasons of practice.

- *25% leaf elongation* **[Intensive only]**
  The majority of young leaves have unfolded completely and have expanded to one-quarter (25%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 25% leaf elongation, the canopy appears to be approximately one-quarter (25%) full.

- *50% leaf elongation* **[Intensive only]**
  The majority of young leaves have unfolded completely and have expanded to half (50%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 50% leaf elongation, the canopy appears to be approximately half (50%) full.

- *75% leaf elongation*

The majority of young leaves have unfolded completely and have expanded to three-quarters (75%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 75% leaf elongation, the canopy appears to be approximately three-quarters (75%) full.

- *Full leaf elongation* **[Intensive only]**
  The majority of young leaves have unfolded completely and have expanded to 95-100% of their mature size. At full leaf elongation, the canopy appears to have reached its full density.

Fruit ripening

- *First fruit ripe*
  In at least 3 locations on the plant, a fruit has become ripe. In *Vaccinium corymbosum*, a berry is considered ripe when it is blue to blue-black in color or when it has been eaten by wildlife.

- *50% of fruit ripe* **[Intensive only]**
  For the whole plant, half (50%) of the fruits are ripe.

- *All fruit ripe* **[Intensive only]**
  For the whole plant, virtually all (95-100%) of the fruits are ripe.

Leaf color change

Note: If drought seems to be the cause of leaf color change for a plant, please make a comment about it for that plant.

- *First leaf colored* **[Intensive only]**
  In at least 3 locations on the plant, the green leaves have begun to change to their late season colors.

- *25% of leaves colored* **[Intensive only]**
  For the whole plant, one-quarter (25%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.

- *50% of leaves colored*
  For the whole plant, half (50%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.

- *75% of leaves colored* **[Intensive only]**
  For the whole plant, three-quarters (75%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.

- *All leaves colored*
  For the whole plant, virtually all (95-100%) of the leaves (including any that have fallen to the ground) have changed to their late season colors and there is virtually no green left in the leaves.

Leaf fall

Note: If drought seems to be the cause of leaf fall for a plant, please make a comment about it for that plant.

- *First leaf fallen* **[Intensive only]**
  In at least 3 locations on the plant, a leaf easily falls off into your hand when touched or gently handled. First leaf fallen may also be indicated by the presence of at least 3 leaves on the ground below the plant (that are not apparently from another individual nearby).

- *25% of leaves fallen* **[Intensive only]**
  For the whole plant, one-quarter (25%) of the leaves have fallen.

- *50% of leaves fallen*
  For the whole plant, half (50%) of the leaves have fallen.

- *75% of leaves fallen* **[Intensive only]**
  For the whole plant, three-quarters (75%) of the leaves have fallen.

- *All leaves fallen*
  For the whole plant, virtually all (95-100%) of the leaves have fallen.

Did you know? *Vaccinium corymbosum* is the major blueberry-producing species used in the commercial fruit industry. Its fruit is eaten raw, smoke-dried, sun-dried, boiled, and baked. Native Americans also used the plant and its fruit for medicines and food. Wildlife and birds also love the fruit, providing an important source of food for numerous species in the summer and early fall.

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Notes

The USDA PLANTS symbol for this plant is VACO.
The ITIS Taxonomic Serial No. for this species is 23573.

BBCH codes for phenophases used for this plant are available from the USA-NPN office upon request.

Proposed modifications, updates or corrections to this protocol are welcome; please direct correspondence to the USA-NPN National Coordinating Office.

Prior versions of this species protocol will be made available in a documents library on USA-NPN webpage.

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