

## HIGHBUSH CRANBERRY

*Viburnum opulus* L. var.  
*americanum* Ait.

Plant Symbol = VIOPA2

Contributed by: USDA NRCS National Plant Data Center & the Biota of North America Program



*Viburnum opulus*

© Hugh Wilson

Vascular Plant Image Gallery

Texas A&M Univ., Bioinformatics Working Group

### Alternate Names

American cranberrybush, cranberry tree, crampbark tree, guelder-rose, wild gueldes-rose, gueldres-rose, cherry-wood, rose elder, red elder, marsh elder, water elder, white elder, gadrise, gaiter tree, gatten, love rose, May rose, pincushion tree, dog rowan tree, whitten tree, squaw bush, witch-hobble, witchhopple; synonyms: *Viburnum trilobum* Marsh.; *Viburnum opulus* ssp. *trilobum* (Marsh.) Clausen

### Uses

**Ethnobotanic:** The bark of highbush cranberry yields a powerful antispasmodic (whence the origin of one its American common names, crampbark). The water-soluble preparation (containing a bitter compound called viburnine) has been used for relief of menstrual and stomach cramps and asthma. The antispasmodic properties apparently were discovered independently by European, Native American, and Asian peoples. The action of this agent from highbush cranberry closely resembles that of black haw (*Viburnum prunifolium*).

Highbush cranberry is used as an ornamental plant and valued for its edible fruits. The fruit is commonly gathered from wild stands in late August

or early September, best when picked slightly under-ripe (and sour), and used in sauces, jellies, and juices. If picked after a heavy frost, the fruit are softer and more palatable but they develop a musty, somewhat objectionable odor during cooking. The species has never developed into a commercial fruit crop.

**Wildlife:** The bright red fruits often persist on the plants throughout the winter, good for ornamental value but suggesting that they may not be especially palatable for wildlife. Still, they are known to be eaten by deer, moose, foxes, raccoons, chipmunks, squirrels, skunks, mice, rabbits, grouse, pheasants, robins, cedar waxwings, and other songbirds. They are not normally eaten by birds until after they have frozen and thawed several times.

The native (American) plants of this species (= *V. trilobum* = *V. opulus* var. *americanum*, see below) are hardier as ornamentals, less susceptible to aphid attack, and have more intense fall color than the Eurasian plants, and they produce edible fruit. Fruit of the European plants tends to be bitter, and cultivars derived from the European species are grown strictly as ornamentals.

### Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

### Description

**General:** Honeysuckle family (Caprifoliaceae). Native shrubs to 4 m high, with upright, spreading, arching branches. Leaves deciduous, opposite, ovate, 5-12 cm long, deeply 3-lobed, coarsely toothed, with 1-6 large glands near the petiole apex, becoming yellow-red or reddish-purple in the fall. Flowers white, in flat-topped clusters 7-10 cm broad, with flowers of two different types, those in the outer ring sterile, showy, with expanded corollas 1-2 cm broad, the inner flowers much smaller, fertile, with yellow anthers. Fruit berry-like (a drupe), globose, bright red, 8-10 mm in diameter; stone single, strongly flattened. The common name alludes to the resemblance in fruit between the highbush cranberry and the cranberry of commerce (*Vaccinium macrocarpon*).

*Variation within the species.*

The North American plants have generally been recognized as the same species as the closely similar native of Europe, northern Africa, and northern Asia – *V. opulus* L. [var. *opulus*]. Var. *opulus* is said to differ from the American variety in its filiform-attenuate stipules and petiolar glands mostly short-pedicellate, round-topped to concave, and mostly wider than high. Voss (1996) notes that “variation between vars. *opulus* and *americanum* is too great – and too continuous – to make clear distinctions.” Variants have not generally been recognized from within the American segment of the species, but horticultural selections have been made from plants of both continents, primarily for leaf color, fruit color, and growth habit. The best known of these is the cultivated “snowball bush” (*V. opulus* var. *roseum*), a form developed from Old World plants, with spherical inflorescences of enlarged, completely sterile flowers (the “snowballs”).

The native variety (var. *americanum*) is known to hybridize with cultivated or escaped ornamental forms of var. *opulus*. This may result in the gradual degradation or loss of the native genotype.

*Distribution:* Var. *americanum* is widely distributed across north-central North America, from Newfoundland, Nova Scotia, New Brunswick, and Quebec to British Columbia, and in the US from Maine to Pennsylvania and West Virginia, northwestward to Washington. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site. The non-native var. *opulus* is frequently planted and sometimes escapes; it is recorded from Ontario and New Brunswick and various states in the northeastern quarter of the US – Maine to Virginia and West Virginia, westward to Wisconsin, Iowa, and Missouri.

#### **Adaptation**

Highbush cranberry grows in wet woods, along streams, and on moist wooded hillsides, requiring moist but well-drained sites for best development. Flowering (May-)June-July; fruiting August-September.

#### **Establishment**

The seeds are difficult to germinate; in the wild, seeds don't germinate until the second spring following the ripening of the fruit.

#### **Management**

Highbush cranberry is easy to grow, adaptable to a variety of soil and acidity, but it does best in consistently moist but well-drained soil. A yearly

application of compost or well-rotted manure will maintain growth and fruit yields. The plants are shade-tolerant, but flowering, fruiting, and foliage color will be best on plants in full sun. Plants may require occasional pruning to keep them from becoming leggy and to encourage the production of new shoots; prune immediately after flowering. Highbush cranberry can be propagated through hardwood and softwood cuttings, layering, crown division and by seed. Take softwood cuttings in mid-June through early-July for easiest rooting.

Var. *americanum* is relatively -free from insect and disease damage in cultivation although bacterial leaf spot, powdery mildew, shoot blight, tarnished plant bugs, stem borers, and thrips will occasionally be a problem.

*Viburnum leaf beetle.* The viburnum leaf beetle (*Pyrrhalta viburni*), native to Europe and Asia, was first encountered in North America in 1947, perhaps arriving earlier from Europe on nursery plants. It received little notice until 1978, when it caused severe defoliation of ornamental viburnums in Ontario and Quebec. It has now reached western New York and Maine and become a concern in urban landscapes and nurseries.

The adult and the larva “skeletonize” leaves by feeding on the leaves between the midrib and larger veins. Plants which have been defoliated for 2-3 consecutive years may be killed. The preferred host is *Viburnum opulus* and its selections; lesser damage is caused to *V. lantana* and *V. rafinesquianum*, *V. dentatum*, *V. acerifolium*, and *V. lentago*. Other species, particularly *V. rhytidophyllum* and *V. carlesii*, are relatively unaffected.

The entire life cycle of the viburnum leaf beetle takes about 8-10 weeks. Larvae hatch in early May and feed on the viburnum leaves throughout the larval period, which lasts 4-5 weeks. The larvae pupate in the soil. The adults (4.5-6.5 mm long, brown) appear by mid-July and continue eating the leaves, then mate and lay over-wintering eggs on the twigs. Egg-laying holes are in a straight line on the underside of the current season's growth.

Chemical control of the viburnum leaf beetle is best applied to young larvae, because adults will fly away or drop to the ground if disturbed. If over-wintering egg sites are found, affected wood should be pruned and destroyed before the eggs hatch. Examine upper and lower leaf surfaces for feeding larvae. Potential biological control mechanisms are being studied.

### **Cultivars, Improved and Selected Materials (and area of origin)**

These plant materials are somewhat available from commercial sources. Native plant cultivars with superior fruit and processing characteristics are available (for example: "Andrews," "Hahs," "Hogg's Red," "Manitou," "Phillips," and "Wentworth"). The processed fruit is very similar to cranberry (*Vaccinium macrocarpon*) and red currant (*Ribes rubrum*).

Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

### **References**

- Barton L.V. 1958. *Germination and seedling production of species of Viburnum*. Pl. Propag. 8:126-136.
- Donoghue, M. 1980. *Flowering times in Viburnum*. *Arnoldia* 40:2-22.
- Donoghue, M. 1983. *A preliminary analysis of phylogenetic relationships in Viburnum (Caprifoliaceae s.l.)*. *Syst. Bot.* 8:45-58.
- Egolf, D.R. 1962. *A cytological study of the genus Viburnum*. *J. Arnold Arb.* 43:132-172.
- Felter, H.W. & J.U. Lloyd 2000. *Viburnum opulus*. In King's American Dispensatory. Web site. <<http://metalab.unc.edu/herbmed/eclectic/kings/sambucus.html>>
- Ferguson, I.K. 1966. *The genera of the Caprifoliaceae in the southeastern United States*. *J. Arnold Arbor.* 47:33-59.
- Finn, C. 1999. *Temperate berry crops*. Pp. 324-334. IN: J. Janick (ed.), *Perspectives on new crops and new uses*. ASHS Press, Alexandria, Virginia. <<http://www.hort.purdue.edu/newcrop/proceedings1999/v4-324.html#cranberry>>
- Friedlander, B.P., Jr. 1999. *Voracious viburnum leaf beetle munches into Ithaca area*. *Cornell Chronicle*. <[http://www.news.cornell.edu/Chronicles/6.17.99/leaf\\_beetle.html](http://www.news.cornell.edu/Chronicles/6.17.99/leaf_beetle.html)>
- Giersbach J. 1937. *Germination and seedling production of species of Viburnum*. *Contr. Boyce Thompson Inst. Pl. Res.* 9:79-90.
- Hauser, E.J.P. 1965. *Characteristics and distribution of Viburnum (Caprifoliaceae) in Georgia*. *Bull. Ga. Acad. Sci.* 23:(11 pages).
- Hillebrand, G.R. & D.E. Fairbrothers 1969. *A serological investigation of intrageneric relationships in Viburnum (Caprifoliaceae)*. *Bull. Torrey Bot. Club* 96:556-567.
- Jones, T.H. 1983. *A revision of the genus Viburnum sect. Lentago (Caprifoliaceae)*. Ph.D. diss., North Carolina State Univ., Raleigh.
- Jones, E. & N.T. Wheelwright 1987. *Seasonal changes in the fruits of Viburnum opulus, a freshly-fruited temperate-zone shrub*. *Canad. J. Bot.* 65:2291-2296.
- Kessel, C. 2000. *Viburnum leaf beetle, Pyrrhalta viburni (Paykull), in the nursery and landscape*. Ontario Ministry of Agriculture, Food and Rural Affairs, Ontario, Canada. Web site. <<http://www.gov.on.ca/OMAFRA/english/crops/facts/vlb.htm>>
- Krannitz, P.G. & M.A. Maun 1991. *An experimental study of floral display size and reproductive success in Viburnum opulus: importance of grouping*. *Canad. J. Bot.* 69:394-399.
- Krannitz, P.G. & M.A. Maun 1991. *Insect visitors to guelder rose, Viburnum opulus var. opulus (Caprifoliaceae) in London, Ontario*. *Canad. Field-Naturalist* 105:13-17.
- Lubbock J. 1891. *On the form of the leaf of Viburnum opulus and V. lantana*. *J. Linn. Soc. Bot.* 28:244-247.
- McAtee, W.L. 1956. *A review of the Nearctic Viburnum*. Published by the author, Chapel Hill, North Carolina.
- Pixler, VA. 1950. *The Caprifoliaceae of West Virginia*. *Castanea* 15:80-91.
- St-Pierre, R. 1995. *The highbush cranberry - A multipurpose shrub*. Internet publication. <<http://www.google.com/search?q=cache:www.ag.usask.ca/cofa/departments/hort/hortinfo/fruit/cranberry.html+viburnum+trilobum&hl=en>>
- Voss, E.G. 1996. *Viburnum*. Pp. 309-315. IN: *Michigan Flora, Part III*. Cranbrook Institute of Science Bull. 61.

**Prepared By**

*Guy Nesom*

Formerly BONAP, North Carolina Botanical Garden,  
University of North Carolina, Chapel Hill, North  
Carolina

**Species Coordinator**

*M. Kat Anderson*

USDA, NRCS, National Plant Data Center  
c/o Plant Sciences Department, University of  
California, Davis, California

Revised: 29jan03 jsp; 060818 jsp

For more information about this and other plants, please contact  
your local NRCS field office or Conservation District, and visit the  
PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials  
Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

*The U.S. Department of Agriculture (USDA) prohibits  
discrimination in all its programs and activities on the basis of  
race, color, national origin, sex, religion, age, disability, political  
beliefs, sexual orientation, and marital or family status. (Not all  
prohibited bases apply to all programs.) Persons with disabilities  
who require alternative means for communication of program  
information (Braille, large print, audiotape, etc.) should contact  
USDA's TARGET Center at 202-720-2600 (voice and TDD).*

*To file a complaint of discrimination write USDA, Director, Office  
of Civil Rights, Room 326-W, Whitten Building, 14th and  
Independence Avenue, SW, Washington, DC 20250-9410 or call  
202-720-5964 (voice or TDD). USDA is an equal opportunity  
provider and employer.*

*Read about [Civil Rights at the Natural Resources Conservation  
Service](#).*