

**Family:** *Ericaceae*

**Taxon:** *Vaccinium corymbosum L. hybrid*

**Synonym:** NA

**Common Name:** Southern highbush

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation:	EVALUATE
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score	2
101	Is the species highly domesticated?		y=-3, n=0		n
102	Has the species become naturalized where grown?		y=1, n=-1		
103	Does the species have weedy races?		y=1, n=-1		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)		Intermediate
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)		Low
203	Broad climate suitability (environmental versatility)		y=1, n=0		y
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0		y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0		y
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205		n
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)		n
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)		n
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)		n
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)		y
401	Produces spines, thorns or burrs		y=1, n=0		n
402	Allelopathic		y=1, n=0		n
403	Parasitic		y=1, n=0		n
404	Unpalatable to grazing animals		y=1, n=-1		n
405	Toxic to animals		y=1, n=0		n
406	Host for recognized pests and pathogens		y=1, n=0		
407	Causes allergies or is otherwise toxic to humans		y=1, n=0		n
408	Creates a fire hazard in natural ecosystems		y=1, n=0		n
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0		n
411	Climbing or smothering growth habit		y=1, n=0		n

412	Forms dense thickets	y=1, n=0	
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m <sup>2</sup> )	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: EVALUATE

WRA Score 2

**Supporting Data:**

101	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Is the species highly domesticated? No] "The six southern highbush blueberry cultivars tested were Biloxi, Emerald, Jewel, Misty, Sapphire, and Sharpblue; these are complex hybrids between northern highbush blueberry, <i>Vaccinium corymbosum</i> L, and southern <i>Vaccinium</i> species, such as <i>V. darrowii</i> Camp. These cultivars were selected based on their high quality and low chill requirements (USDA/ARS GRIN 2005). In general, the southern highbush blueberries were developed to be more tolerant of heat during the growing season, and to mineral soils rather than highly organic soils."
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Species suited to tropical or subtropical climate(s) 1-intermediate] "In general, the southern highbush blueberries were developed to be more tolerant of heat during the growing season, and to mineral soils rather than highly organic soils. The southern highbush cultivars require a lesser degree of cool weather (chilling) for flowering."
202	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Quality of climate match data? 0-low] "In general, the southern highbush blueberries were developed to be more tolerant of heat during the growing season, and to mineral soils rather than highly organic soils. The southern highbush cultivars require a lesser degree of cool weather (chilling) for flowering."
203	2011. Willis Orchard Company. Southern Highbush Blueberry Plant. <a href="http://www.willisorchards.com/product/Southern+Highbush+Blueberry+Plant">http://www.willisorchards.com/product/Southern+Highbush+Blueberry+Plant</a>	[Broad climate suitability (environmental versatility)? Yes] "About Southern Highbush Blueberry Plant...The Southern Highbush blueberry is a cross between Northern Highbush blueberries and native Southern species, giving it a greater range of adaptation than either of its parents. The Southern Highbush tolerates a wider range of soil conditions and temperature variations. The fruits are smaller than Rabbiteye blueberries but no less tasty. Southern Highbush blueberries are becoming more popular for both home and commercial plantings for the production of delicious berries before Rabbiteye blueberries start ripening. The Southern Highbush blueberry is an excellent choice for Gulf Coastal States but also for people in the upper south or middle states like Virginia or Kentucky, as they are a little more cold hardy than Rabbiteye Blueberries. (The varieties we offer are O'NEAL, SHARP BLUE, and MISTY.) (Zones 6B - 10A) (B refers to the lower portion of a zone and A to the upper portion.)"
204	2004. Williamson, J.G./Lyrene, P.M.. Blueberry Varieties for Florida. HS967. University of Florida IFAS Ext., Gainesville, FL <a href="http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf">http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf</a>	[Native or naturalized in regions with tropical or subtropical climates? Yes. Bred for a warmer, subtropical climate] "Southern highbush blueberries were developed by crossing northern highbush varieties from Michigan and New Jersey with wild blueberries native in Florida and other southeastern states. The first three southern highbush varieties were released from the University of Florida in the mid 1970s. Since then, many newer and improved southern highbush varieties have been released."
205	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Does the species have a history of repeated introductions outside its natural range? Yes] "In addition to the southern USA, southern highbush are being grown in southern Europe, Australasia and warmer regions in Latin America."
301	1986. Adema, F.. <i>Vaccinium corymbosum</i> L. in Nederland ingeburgerd. ( <i>Vaccinium corymbosum</i> L. naturalized in the Netherlands.). <i>Gorteria</i> . 13(3-4): 65-69.	[Naturalized beyond native range? Yes for <i>V. corymbosum</i> , one of the parental species used to produce southern highbush cultivars]
301	2009. eFloras. Flora of North America Volume 8 - <i>Vaccinium corymbosum</i> . <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242417401">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242417401</a>	[Naturalized beyond native range? Yes for <i>V. corymbosum</i> , one of the parental species used to produce southern highbush cultivars] "Feral populations readily become established wherever cultivars have been planted, e.g., Britain, British Columbia, Japan, Missouri, The Netherlands, New Zealand, Washington, and Wisconsin."
301	2011. WRA Specialist. Personal Communication.	[Naturalized beyond native range? No evidence of southern highbush]
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	[Garden/amenity/disturbance weed? No] No evidence

303	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	[Agricultural/forestry/horticultural weed? No] No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	[Environmental weed? No] No evidence
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	[Congeneric weed? Yes] Multiple <i>Vaccinium</i> species are listed as either naturalized, and/or weeds outside of their introduced range.
401	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Produces spines, thorns or burrs? No]
402	2011. WRA Specialist. Personal Communication.	[Allelopathic? No] Unlikely, given widespread cultivation with no anecdotal reports of allelopathic properties or traits.
403	2004. Williamson, J.G./Lyrene, P.M.. Blueberry Varieties for Florida. HS967. University of Florida IFAS Ext., Gainesville, FL <a href="http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf">http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf</a>	[Parasitic? No] Ericaceae
404	2004. Tamada, T.. Attempt at blueberry cultivation. Cultivation guideline for Southern highbush blueberry. Agriculture and Horticulture. 79(4): 499-508.	[Unpalatable to grazing animals? No] "And bird damage, animal damage (wild boar, deer, serow, and hare), weather hazard (frost, strong wind, snow and hail) and the measures against them are described." [Browsed on by several animals]
404	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Unpalatable to grazing animals? No] "Turkeys and pheasants damaged the young plants"
405	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Toxic to animals? No] No evidence
406	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Host for recognized pests and pathogens? Possibly] "Chinese rose beetles sometimes caused significant chewing damage to the foliage, and control measures were necessary on occasion. Although blueberries are listed as a host for the Mediterranean fruit fly, no obvious fruit fly damage was noted on ripe fruit. Leaf spots and melon aphid colonies occasionally occurred on new shoots but were not serious problems." [Pests already widespread in Hawaiian Islands]
406	2008. Hancock, J.F.. Temperate Fruit Crop Breeding: Germplasm to Genomics. Springer, Berlin-Heidelberg-New York	[Host for recognized pests and pathogens? Possibly] "...stem blight, cane canker and Phytophthora root rot are most common in rainy, hot climates where southern highbush are grown."
406	2008. Naidu, S.. International Encyclopaedia of Agricultural Science and Technology: Horticultural crops. Mittal Publications, New Delhi, India	[Host for recognized pests and pathogens? Potentially] "Rust is a serious leaf-defoliating problem for southern highbush varieties...Root rot occurs more often on southern highbush plants than on rabbiteyes."
406	2009. Follett, P.A./Armstrong, J.W./Zee, F.T.. Host Status of Blueberry to Invasive Tephritid Fruit Flies in Hawaii. Journal of Economic Entomology. 102(5): 1859-1863.	[Host for recognized pests and pathogens? Possibly] "Forced infestation studies were conducted to determine whether northern or southern highbush blueberries, <i>Vaccinium corymbosum</i> L., are hosts for the invasive tephritid fruit flies in Hawaii. Fruit were exposed to gravid female flies of <i>Bactrocera dorsalis</i> Hendel (oriental fruit fly), <i>Ceratitis capitata</i> (Wiedemann) (Mediterranean fruit fly), or <i>Bactrocera cucurbitae</i> Coquillett (melon fly) in screen cages outdoors for 6 h and then held on sand in the laboratory for 2 wk for pupal and adult emergence...Results from rearing on sand and diet indicate that blueberry is an acceptable oviposition host for <i>B. latifrons</i> but not an adequate developmental host. These data suggest blueberry is potentially a good host for <i>B. dorsalis</i> and <i>C. capitata</i> , and an adequate host for <i>Bactrocera cucurbitae</i> , but that there may be significant variation in resistance among cultivars. Blueberry seems to be a nonhost for <i>B. latifrons</i> ."
407	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Causes allergies or is otherwise toxic to humans? No] No evidence

408	2010. Rawlings Consulting Forestry. Firewise Landscaping in North Carolina. <a href="http://library.rawlingsforestry.com/ncces/firewise_landscaping/firewise_landscaping.pdf">http://library.rawlingsforestry.com/ncces/firewise_landscaping/firewise_landscaping.pdf</a>	[Creates a fire hazard in natural ecosystems? No. No evidence] "Table 1. Plant Species Native to North Carolina with a Low Flammability Rating (continued)" [Includes <i>Vaccinium corymbosum</i> , Highbush blueberry, one of the parental species used to produce Southern highbush cultivars]
409	2008. Lyrene, P.. Breeding Southern Highbush Blueberries, in Plant Breeding Reviews, Volume 30 (ed J. Janick). John Wiley & Sons, Inc., Hoboken, NJ,	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Highbush blueberries are somewhat shade tolerant but yield most when grown in full sun ..."
409	2011. Edible Landscaping Online. Star Southern Highbush Blueberry. <a href="http://www.ediblelandscaping.com/plants.php?func=view&amp;id=53">http://www.ediblelandscaping.com/plants.php?func=view&amp;id=53</a>	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Shade Tolerance: Fair"
410	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Tolerates a wide range of soil conditions? Possibly] "Most literature mentions that for blueberry growth and production the soil pH should be within the range 4.0– 5.2 (with an optimum of 4.5–4.8). When the soil pH is higher than this range, growers often use an acidifying amendment such as finely ground sulfur to lower the pH. Although the soil at the Mealani Research Station averaged pH 5.7 and ranged from pH 5.3 to 6.1, sulfur was not used to amend the pH, except to the extent that it was supplied in the fertilizers used. Micronutrient deficiency, such as iron deficiency, can occur when the soil pH is too high. For this preliminary trial, chelated iron was applied through the irrigation system."
410	2007. Kole, C.. Fruits and nuts. Springer-Verlag, Berlin-Heidelberg	[Tolerates a wide range of soil conditions? Yes] "Southern highbush were specifically hybridized for superior fruit, soil adaptability, heat tolerance and winter chilling."
411	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Climbing or smothering growth habit? No] "Standard and southern highbush blueberries are crown-forming shrubs with two to five basal stems that range from 1-5 m in height (1.5-3 m generally in cultivation)."
412	1914. Bicknell, E.P.. The Ferns and Flowering Plants of Nantucket-XIII. Bulletin of the Torrey Botanical Club. 41(8): 411-427.	[Forms dense thickets? Unknown] "An abundant shrub, mainly of low grounds, where it mixes with other shrubby or groups itself into close thickets that form impassable barriers about pools and swampy spots." [Description for <i>Vaccinium corymbosum</i> , one of the parental species used to produce hybrid southern highbush cultivars]
501	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Aquatic? No. Terrestrial]
502	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Grass? No] Ericaceae
503	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Nitrogen fixing woody plant? No] Ericaceae
504	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Standard and southern highbush blueberries are crown-forming shrubs with two to five basal stems that range from 1-5 m in height (1.5-3 m generally in cultivation)."
601	2004. Williamson, J.G./Lyrene, P.M.. Blueberry Varieties for Florida. HS967. University of Florida IFAS Ext., Gainesville, FL <a href="http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf">http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf</a>	[Evidence of substantial reproductive failure in native habitat? No] "Southern highbush blueberries were developed by crossing northern highbush varieties from Michigan and New Jersey with wild blueberries native in Florida and other southeastern states. The first three southern highbush varieties were released from the University of Florida in the mid 1970s. Since then, many newer and improved southern highbush varieties have been released."
602	2010. gardenguides.com. Highbush Blueberry ( <i>Corymbosum</i> ). <a href="http://www.gardenguides.com/taxonomy/highbush-blueberry-vaccinium-corymbosum/">http://www.gardenguides.com/taxonomy/highbush-blueberry-vaccinium-corymbosum/</a>	[Produces viable seed? Yes] "Seeds or cuttings can propagate plants of highbush blueberry."
603	2006. Lyrene, P.. Breeding Low-chill Blueberry Varieties. In III Simpósio nacional do morango. II Encontro sobre pequenas frutas e Frutas nativas do Mercosul. <a href="http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35">http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35</a>	[Hybridizes naturally? Unknown] "The ability of two blueberry species to produce hybrids when crossed, and the fertility and vigor of the hybrids, depends on two factors: 1.) the sections to which the species belong and 2.) the chromosome number (ploidy level) of the plants that are crossed. In section <i>Cyanococcus</i> , any two species that have the same chromosome number can readily be hybridized, and the resulting hybrids are typically vigorous and fertile. Tetraploid species within <i>Cyanococcus</i> can be crossed with diploids. Very few seedlings are normally obtained from this type of cross, but enough hybrids can often be produced to obtain parents for further crosses. Tetraploid x diploid crosses produce a mixture of triploid and tetraploid hybrids. Tetraploid hybrids result because many diploid <i>Vaccinium</i> species make a few unreduced gametes. These tetraploid hybrids are usually quite fertile, and produce fertile seedlings when backcrossed to the tetraploid parent species."

603	2008. Hancock, J.F.. Temperate Fruit Crop Breeding: Germplasm to Genomics. Springer, Berlin-Heidelberg-New York	[Hybridizes naturally? Unknown] "Wide hybridization is commonly employed in blueberry breeding and southern highbush types were derived primarily by incorporating genes from the diploid species <i>Vaccinium darrowii</i> into the highbush background via unreduced gametes."
604	1992. Lang, G.A./Parrie, E.J.. Pollen viability and vigor in hybrid southern highbush blueberries ( <i>Vaccinium corymbosum</i> L. x spp.). Hortscience. 27: 425-427.	[Self-compatible or apomictic? Possibly] "Since their interspecific ancestry includes diploid, tetraploid, and hexaploid species ranging from self-fruitful to self incompatible, one of the first factors to study with regard to fruit development is pollen viability and vigor."
604	2000. Delaplane, K.S./Mayer, D.F.. Crop pollination by bees. CABI, Wallingford, UK	[Self-compatible or apomictic? Yes] "In crossing experiments with seven southern highbush varieties, selfing generally did not affect fruit-set, but it reduced number of seeds per berry, berry weight, and speed of ripening..." [Self-compatible, but less effective than cross pollination]
604	2006. Rieger, M.. Introduction to fruit crops. The Haworth Press, Binghamton, NY	[Self-compatible or apomictic? Partially] "Southern highbush cultivars, in contrast, are only partially self-fruitful and are often provided with pollinizers in commercial production."
604	2008. Bonner, F.T./Karrfalt, R.P.. The Woody Plant Seed Manual. Government Printing Office, Washington, D.C.	[Self-compatible or apomictic? Possibly] "Rabbiteye and lowbush blueberries are generally self-sterile and must be interplanted to ensure fruit-set. Highbush blueberries are self-fertile, although yields can be improved by interplanting with different cultivars (Huxley 1992a)."
605	2000. Sampson, B.J./Cane, J.H.. Pollination Efficiencies of Three Bee (Hymenoptera: Apoidea) Species Visiting Rabbiteye Blueberry. Journal of Economic Entomology. 93(6): 1726-1731.	[Requires specialist pollinators? No. Blueberry species are pollinated by generalist insects] "However, upon successful transplantation of adult bees, both male and female <i>H. laboriosa</i> could provide unrivaled pollination service to blueberry producers. Should such efforts prove impractical, <i>O. ribifloris</i> will soon be available for southern blueberry pollination. Honey bees can also be effective blueberry pollinators."
605	2008. Janick, J./Paull, R.E.. The encyclopedia of fruit & nuts. Cabi Publishing, Wallingford, UK	[Requires specialist pollinators? No] "Pollination is effected by bees, primarily solitary bees (mostly <i>Bombus</i> spp.) in nature. Colonies of honeybees (between two and five/ha) are commonly placed in and around blueberry fields during bloom to ensure adequate pollination, especially where populations of native bees are not abundant and where fields are large."
606	2006. Lyrene, P.. Breeding Low-chill Blueberry Varieties. In III Simpósio nacional do morango. II Encontro sobre pequenas frutas e Frutas nativas do Mercosul. <a href="http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35">http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35</a>	[Reproduction by vegetative fragmentation? Unknown. Some cultivars may be able to spread vegetatively through gradual production of adventitious roots] "Blueberry cultivars are normally propagated by stem cuttings or in vitro. Genotypes vary in their ability to form adventitious roots. A few potential cultivars have been so hard to propagate from cuttings that they have been discarded during final testing."
607	2006. Lyrene, P.. Breeding Low-chill Blueberry Varieties. In III Simpósio nacional do morango. II Encontro sobre pequenas frutas e Frutas nativas do Mercosul. <a href="http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35">http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35</a>	[Minimum generative time (years)? 2] "Blueberry plants grown from seed have a short juvenile period, and normally make some fruit in their second year. Plants grown from cuttings may flower even before they are rooted."
701	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No evidence. No means of external attachment on fruit & seeds]
702	2004. Williamson, J.G./Lyrene, P.M.. Blueberry Varieties for Florida. HS967. University of Florida IFAS Ext., Gainesville, FL <a href="http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf">http://edis.ifas.ufl.edu/pdf/HS/HS21500.pdf</a>	[Propagules dispersed intentionally by people? Yes. Grown commercially] "Beginning in the late 1980s, southern highbush began to replace rabbiteye as the blueberry of choice for fresh fruit shipping within and from Florida. Currently all Florida blueberry plantings that are grown for fresh fruit shipping are southern highbush varieties. Some of the more common southern highbush varieties are described below."
703	2011. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? Unknown] If grown commercially with other crops, seeds could potentially be inadvertently spread
704	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Propagules adapted to wind dispersal? No. Fleshy-fruited]

705	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Propagules water dispersed? No. Fleshy-fruited. Not adapted for water dispersal]
706	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Propagules bird dispersed? Yes] "The most serious problem encountered during the first year of growing blueberries at the Mealani Research Station was bird damage. Turkeys and pheasants damaged the young plants. Cardinals and white-eyes damaged and fed on the fruit."
707	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Propagules dispersed by other animals (externally)? No evidence. No means of external attachment on fruit & seeds]
708	2006. Zee, F./Hummer, K./Nishijima, W./Kai, R./Strauss, A./Yamasaki, M./Hamasaki, R.T.. Preliminary Yields of Southern Highbush Blueberry in Waimea, Hawai'i. F&N-12. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf">http://www.ctahr.hawaii.edu/oc/freepubs/pdf/F_N-12.pdf</a>	[Propagules survive passage through the gut? Presumably yes] "The most serious problem encountered during the first year of growing blueberries at the Mealani Research Station was bird damage. Turkeys and pheasants damaged the young plants. Cardinals and white-eyes damaged and fed on the fruit."
708	2010. gardenguides.com. Highbush Blueberry (Corymbosum). <a href="http://www.gardenguides.com/taxonomy/highbush-blueberry-vaccinium-corymbosum/">http://www.gardenguides.com/taxonomy/highbush-blueberry-vaccinium-corymbosum/</a>	[Propagules survive passage through the gut? Presumably yes] "The seeds may be widely dispersed in bird and mammal droppings, but germination success can be reduced up to 15% after passing through an animal gut."
801	2009. Ogden, A.B./van Iersel, M.W.. Southern Highbush Blueberry Production in High Tunnels: Temperatures, Development, Yield, and Fruit Quality During the Establishment Years. Hortscience. 44(7): 1850–1856.	[Prolific seed production (>1000/m <sup>2</sup> )? Unknown] "Poor synchronization of flower development between cultivars can be problematic in southern highbush blueberry production. Southern highbush blueberry cultivars possess varying degrees of self-incompatibility and benefit from cross-pollination. Benefits of cross-pollination include rapid fruit development, enhanced seed production, and large berry size (Mainland, 1984; Sampson and Spiers, 2002, Williamson and Lyrene, 2004b). 'Emerald' and 'Jewel' were selected for this study based on their synchronization of flowering in south Georgia. Interestingly, in 2007, the cultivars were poorly synchronized in their flowering times, which may have resulted in little cross-pollination, especially with early tunnel closing dates" [Seed production may vary when different combinations of cultivars are grown]
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a>	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "Storage Conditions: Viability maintained for 12 years in hermetic cold storage (Crossley, 1974c)" [Laboratory conditions for <i>V. corymbosum</i> . Unknown for the various southern highbush cultivars]
803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on chemical control or herbicide efficacy for southern highbush
804	2006. Lyrene, P.. Breeding Low-chill Blueberry Varieties. In III Simpósio nacional do morango. II Encontro sobre pequenas frutas e Frutas nativas do Mercosul. <a href="http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35">http://www.cpact.embrapa.br/publicacoes/download/documentos/documento_171.pdf#page=35</a>	[Tolerates, or benefits from, mutilation, cultivation, or fire? Possibly. Tolerates regular pruning] "Once established, highbush blueberry plants can live for 50 years or more. In commercial production fields, they are pruned annually to control bush size and shape and to stimulate growth of strong, new canes."

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805	2009. Follett, P.A./Armstrong, J.W./Zee, F.T.. Host Status of Blueberry to Invasive Tephritid Fruit Flies in Hawaii. <i>Journal of Economic Entomology</i> . 102(5): 1859-1863.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown] "Forced infestation studies were conducted to determine whether northern or southern highbush blueberries, <i>Vaccinium corymbosum</i> L., are hosts for the invasive tephritid fruit flies in Hawaii. Fruit were exposed to gravid female flies of <i>Bactrocera dorsalis</i> Hendel (oriental fruit fly), <i>Ceratitis capitata</i> (Wiedemann) (Mediterranean fruit fly), or <i>Bactrocera cucurbitae</i> Coquillett (melon fly) in screen cages outdoors for 6 h and then held on sand in the laboratory for 2 wk for pupal and adult emergence...Results from rearing on sand and diet indicate that blueberry is an acceptable oviposition host for <i>B. latifrons</i> but not an adequate developmental host. These data suggest blueberry is potentially a good host for <i>B. dorsalis</i> and <i>C. capitata</i> , and an adequate host for <i>Bactrocera</i> <i>cucurbitae</i> , but that there may be significant variation in resistance among cultivars. Blueberry seems to be a nonhost for <i>B. latifrons</i> ."
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