

Assessment date: February 2015

<i>Phyllostachys dulcis</i>		Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to FL climates (USDA hardiness zones; 0-low, 1-intermediate, 2-high)	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	n	0
2.04	Native or naturalized in regions with an average of 11-60 inches of annual precipitation	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	y	2
3.02	Garden/amenity/disturbance weed		
3.03	Weed of agriculture	n	0
3.04	Environmental weed	n	0
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals		
4.06	Host for recognised pests and pathogens		
4.07	Causes allergies or is otherwise toxic to humans		
4.08	Creates a fire hazard in natural ecosystems	unk	0
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	n	0
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	y	1
5.01	Aquatic	n	0
5.02	Grass	y	1
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat		
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	n	-1
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators	n	0

6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	>4	-1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal		
7.05	Propagules water dispersed		
7.06	Propagules bird dispersed		
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)		
8.01	Prolific seed production		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	n	-1
8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in U.S.		
Total Score		4	
Implemented Pacific Second Screening		yes	
Risk Assessment Results		Evaluate	

section	# questions answered	satisfy minimum?
A		10 yes
B		7 yes
C		12 yes
total		29 yes

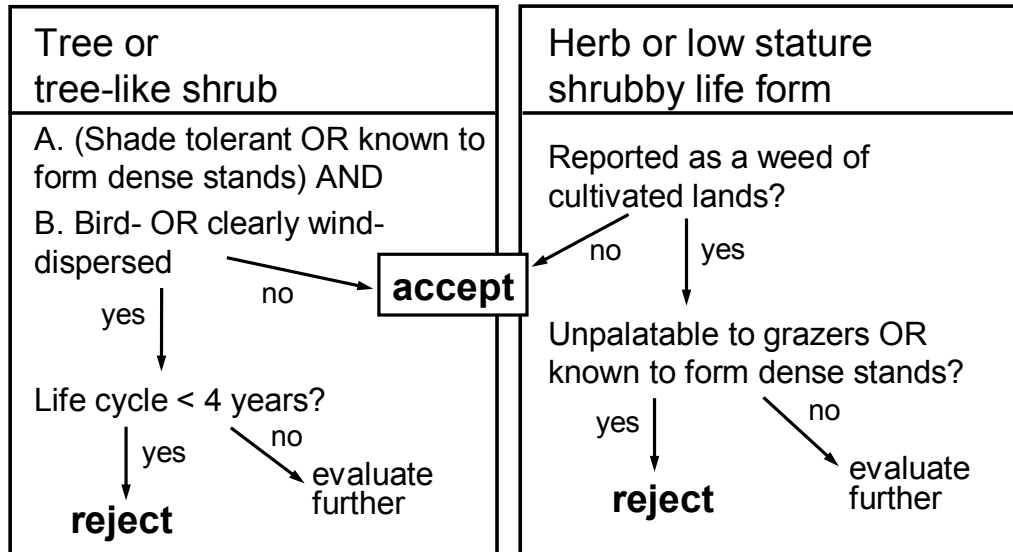
	Reference	Source data
1.01		Cultivated, but no evidence of selection for reduced weediness.
1.02		skip to 2.01
1.03		skip to 2.01
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif). 2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (00 Month 0000).	No computer analysis was performed. 1. Global hardiness zone: 8, 9, 10; equivalent to USDA Hardiness zones: USDA Zone 8a: to -12.2 °C (10 °F) USDA Zone 8b: to -9.4 °C (15°F) USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) USDA Zone 10a: to 1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) . 2. Native to ASIA-TEMPERATE China - Fujian, Jiangsu, Zhejiang
2.02		No computer analysis was performed. Native range is well known; refer to 2.01 source data.
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf).	1. Distribution in the native/cultivated range occurs in Cfa, Cwa
2.04	1. China Maps http://www.chinamaps.org/china/provincemaps/zhejiang.html (1-21-2014) 2. World Bank http://sdwebx.worldbank.org/climateportal/index.cfm?page=country_historical_climate&ThisRegion=Asia&ThisCCCode=CHN (1-21-2014)	47in to 59in
2.05	1. Lewis Bamboo http://www.lewisbamboo.com/dulcis.html (1-21-2014) 2. Burnt Ridge Nursery and Orchards http://www.burntridgenursery.com/SWEET-SHOOT-BAMBOO-Phyllostachys-Dulcis/productinfo/NSBMSWE/ (1-21-2014)	Readily available from internet nurseries.
3.01	1. USDA Plants Database http://plants.usda.gov/core/profile?symbol=PHDU32 . Cullina, M.D., B. Connolly, B. Sorrie, and P. Somers. 2011. The vascular plants of Massachusetts: A county checklist, first revision. Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife, Westborough. 2. Adamson, W. Charles. "Flowering Interval of Sweetshoot Bamboo." <i>Economic Botany</i> 32.4 (1978): 360-62. Springer Link. Web. 21 Jan. 2015.	1. Naturalized in Massachusetts 2. The flowering of <i>P. dulcis</i> (P. 1. 73452) was previously mentioned by Young (1946), who stated that it was introduced in 1908 (as <i>P. henryii</i>) and planted at Avery Island, Louisiana.
3.02		no evidence
3.03		no evidence
3.04	Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Phyllostachys+dulcis (1-21-2015)	This is a good companion species to grow in a woodland because the plants are shallow rooted and do not compete with deep rooted trees.
3.05	1. Holm, LeRoy G. <i>A Geographical Atlas of World Weeds</i> . Malabar, FL: Krieger Pub., 1991. Print. 2. United States Department of Agriculture Animal and Plant Health Inspection Service August 20, 2012 Version 1 Weed Risk Assessment for <i>Phyllostachys aureosulcata</i> McClure (Poaceae) – Yellow groove bamboo	1. <i>Phyllostachys mitis</i> is a principle weed in New Zealand 2. <i>Phyllostachys pubescens</i> has invaded forests in Japan, forming uniform monolayers of foliage (monoculture), and dominating competing vegetation; between 1975 and 1993, this bamboo had replaced the trees in a once-mixed forest (Isagi and Torii, 1977). <i>Phyllostachys flexuosa</i> is reported to form dense stands which prevent native vegetation from growing (GISD, 2008).
4.01	Clayton, W.D., Vorontsova, M.S., Harman, K.T. and Williamson, H. (2006 onwards). GrassBase - The Online World Grass Flora. http://www.kew.org/data/grasses-db.html . (1-21-2012)	These features are not included in the species description.
4.02		no evidence

4.03	1. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (00 Month 0000).	1. Family: Poaceae (not a parasitic family).
4.04	The Backyard Gardener http://www.backyardgardener.com/plantname/pda_5a28.html (1-21-2014)	Tolerances: deer, drought, heat & humidity, pollution, rabbits, seashore, slope
4.05		no evidence
4.06		no evidence
4.07		no evidence
4.08	Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Phyllostachys+dulcis (1-21-2015)	According to Smith (2010) Bamboos in Asia, Africa, Australia and the Americas have the ability to change fire frequency, dead culms provide fuel for stand replacing fires, and green bamboo can provide a ladder for fire to reach the canopy.
4.09	Global Species http://www.globalspecies.org/ntaxa/869794 91-21-2015)	Light Preference: Full Sun
4.10	Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Phyllostachys+dulcis (1-21-2015)	Suitable for: light (sandy), medium (loamy) and heavy (clay) soils. Suitable pH: acid, neutral and basic (alkaline) soils. It can grow in semi-shade (light woodland) or no shade. It prefers moist soil.
4.11	2006. Wu, Z. Y., P. H. Raven & D. Y. Hong, eds.. Flora of China. Vol. 22 (Poaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis http://flora.huh.harvard.edu/china/mss/volume22/index.htm	Family: Poaceae
4.12	The Backyard Gardener http://www.backyardgardener.com/plantname/pda_5a28.html (1-21-2015)	These will grow in large thickets or groves if left alone
5.01	1. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (00 Month 0000).	1. Family: Poaceae.
5.02	1. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (00 Month 0000).	1. Family: Poaceae.
5.03	1. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (00 Month 0000).	1. Family: Poaceae.
5.04	1. Wang, K. et al. 2010. Identification of genes related to the development of bamboo rhizome bud. Journal of Experimental Botany, 61(2): 551–561.	1. According to the type of the rhizome, bamboos have been divided into three groups: scattered bamboos with a monopodial rhizome, caespitose bamboos with a sympodial rhizome, and pluricaespitose bamboos with a monopodial and sympodial rhizome. The rhizome bud can either develop into a bamboo shoot which will grow into a bamboo culm in a very short period, or develop into a new rhizome which will enable the sustainable production of the bamboo grove.
6.01		no evidence

6.02	Adamson, W. Charles. "Flowering Interval of Sweetshoot Bamboo." <i>Economic Botany</i> 32.4 (1978): 360-62. Springer Link. Web. 21 Jan. 2015.	1. The most easy method of bamboo propagation is by means of seeds. Propagation of economically important bamboo species by seeds is not possible annually because of their very long inter-mast periods. 2. The seedlings indicated that seeds were being produced on <i>P. dulcis</i> elsewhere while the clone at Savannah was in flower (1952-1958).
6.03	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. <i>Current Science (Bangalore)</i> , 66(11): 822-824.	1. The peculiar flowering behaviour in bamboos make genetic improvement by hybridizations very difficult. The flowering and seeding at long intervals (7-120 years) render the overlapping of flowering in more than one species, in the same locality very difficult to obtain, making attempts at hybridizations impossible.
6.04	Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Phyllostachys+dulcis (1-21-2015)	The flowers are hermaphrodite (have both male and female organs) and are pollinated by Wind.
6.05	1. Shor, B., Southern California Chapter. From Flowers to Seedlings. American Bamboo Society. Accessed: 18 March 2014. http://www.bamboo.org/GeneralInfoPages/FromFlowersToSeedlings.html	1. Most bamboos are wind-pollinated. Insects may be involved with some species.
6.06	1. Wang, K. et al. 2010. Identification of genes related to the development of bamboo rhizome bud. <i>Journal of Experimental Botany</i> , 61(2): 551-561.	1. The rhizome bud can either develop into a bamboo shoot which will grow into a bamboo culm in a very short period, or develop into a new rhizome which will enable the sustainable production of the bamboo grove.
6.07	Adamson, W. Charles. "Flowering Interval of Sweetshoot Bamboo." <i>Economic Botany</i> 32.4 (1978): 360-62. Springer Link. Web. 21 Jan. 2015.	If the initial flowering began in 1910, the elapsed time until the next flowering was 43 years and flowering should be expected again in 1996. If the flowering began in 1911, then the period was 42 years and flowering should occur again in 1995.
7.01		no evidence
7.02	1. Scurlock et al. 2000 <i>Bamboo: an overlooked biomass resource?</i> <i>Biomass and Bioenergy</i> , 19:229-244. 2. Liese and Hamburg. 1987. <i>Research on bamboo</i> . <i>Wood Science and Technology</i> , 21:189-209	1. Cultivated for erosion control, windbreaks, building material, food, bamboo fiber clothes, etc. 2. Also, has been proposed as a source for pulp for paper and possible biofuel source.
7.03	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. <i>Current Science (Bangalore)</i> , 66(11): 822-824.	1. Very unlikely. The longevity of the seeds varies from species to species, but usually only last 2-3 months under natural conditions. Furthermore, seeds must be sowed immediately in optimal conditions to prevent damping off.
7.04		no evidence
7.05		no evidence
7.06		no evidence
7.07	Clayton, W.D., Vorontsova, M.S., Harman, K.T. and Williamson, H. (2006 onwards). <i>GrassBase - The Online World Grass Flora</i> . http://www.kew.org/data/grasses-db.html . (1-21-2015)	No morphological features that would suggest bamboo seeds are adapted for attachment.
7.08		no evidence
8.01		no evidence
8.02	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. <i>Current Science (Bangalore)</i> , 66(11): 822-824.	1. The longevity of the seeds varies from species to species. Under natural conditions it is for 2-3 months.
8.03		Other phyllostachys can be controlled with Round Up
8.04		no evidence
8.05		no evidence

Pacific second screening: decision rules for species with WRA scores between 1 and 6

(from Daehler *et al.* 2004)



Vines must pass both tests

A. does form dense stands, B. unknown dispersal information=evaluate further