

<i>Phyllostachys mannii</i> (<i>Phyllostachys sedan</i>, <i>Phyllostachys decora</i>, <i>Phyllostachys bawa</i>, <i>Phyllostachys helva</i>, <i>Phyllostachys assamica</i>)-Beautiful		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)	y	1
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		
3.02	Garden/amenity/disturbance weed		
3.03	Weed of agriculture		
3.04	Environmental weed		
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic		
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	y	1
4.07	Causes allergies or is otherwise toxic to humans	n	0
4.08	Creates a fire hazard in natural ecosystems		
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.		
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	n	0
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	n	-1
6.04	Self compatible or apomictic	n	-1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)		
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	n	-1
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	y	-1
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in U.S.		
Total Score		2	
Implemented Pacific Second Screening		yes	
Risk Assessment Results		Evaluate	

section	# questions answered	satisfy minimum?
A	7	yes
B	8	yes
C	16	yes
total	31	yes

completed 1/28/2015

	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 NAPFFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPFFAST%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 (24 Jan 2015).	No computer analysis was performed. 1. Global hardiness zone: 6, 7, 8, 9, 10, 11, 12; equivalent to USDA Hardiness zones: 6a: to -23.3 °C (-10 °F) USDA Zone 6b: to -20.5 °C (-5 °F) USDA Zone 7a: to -17.7 °C (0 °F) USDA Zone 7b: to -14.9 °C (5 °F) 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) USDA Zone 11a: to USDA Zone (40 °F) USDA Zone 11b: to (45 °F) USDA Zone 12a: to (50 °F) USDA Zone 12b: to (55 °F). 2. Native to ASIA TROPICAL India - Arunachal Pradesh, Nagaland (naturalized in ASIA-TEMPERATE China: China - Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, Xizang, Yunnan, Zhejiang ASIA-TROPICAL Indian Subcontinent: India – Meghalaya Indo-China: Myanmar)
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 Aw, Am, Cwa, Cwb, Cfa, Dwc
2.04	1. China Maps, Guangxi, http://www.chinamaps.org/china/provincemaps/guangxi.html 2. World Bank http://sdwebx.worldbank.org/climateportal/index.cfm?page=country_historical_climate&ThisRegion=Asia&ThisCCode=CHN 3. China Maps, Jiangsu http://www.chinamaps.org/china/provincemaps/jiangsu.html (accessed 24 Jan 2015)	31.5in to 79in
2.05	1. MidAtlantic Bamboo http://www.midatlanticbamboo.com/bamboo-frames/bamboo-0034.htm 2. Delhi Wind Bamboo http://www.delhiwindbamboo.com/plants.html 3. Suncrest Nurseries INC http://www.suncrestnurseries.com/plantdisplaypage.php?id=phylym	Readily available from internet nurseries.
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05	1. Diamond, A.R. 2013. New Cyperaceae and Poaceae records from Alabama. <i>Phytoneuron</i> 2013-75: 1–18. Published 27 September 2013. ISSN 2153 733X 2. Tucker, Gordon. "The Genera of Bambusoideae (Gramineae) In the Southeastern United States." <i>Journal of Arnold Arboretum</i> 69.1 (1988): 241.	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	Flora of China http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=125246	These characteristics are not found in the description of the species.
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 (24 Jan 2015).	1. Family: Poaceae (not a parasitic family).
4.04	Backyard Gardener http://www.backyardgardener.com/plantname/pda_5399.html (1-15-2014)	Tolerances: Deer, drought, heat & humidity, pollution, rabbits, seashore, slope.
4.05	Backyard Gardener http://www.backyardgardener.com/plantname/pda_5399.html (1-15-2014)	Tolerances: Deer, drought, heat & humidity, pollution, rabbits, seashore, slope.
4.06	Gardening EU http://www.gardening.eu/arc/plants/Shrubs/Phyllostachys-decora-McClure/52298/index_m.asp (accessed 24 Jan 2015).	Generally during this time of year we suggest a pre-emptive treatment with wide range insecticide and with a systemic fungicide, to prevent the attack from part of the aphids and the development of fungus diseases, often favoured by a mild and damp climate.
4.07		no evidence
4.08	2011. Smith, M.C. Predicting plant naturalizations in the Pacific Northwest: the fate of bamboos in the understory of coniferous forests. Washington State University,	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://globalspecies.org/ntaxa/2477193/L	Light Preference: Full Sun to partial shade
4.10		no evidence
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	Backyard Gardener http://www.backyardgardener.com/plantname/pda_5399.html (1-15-2014)	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 (24 Jan 2015).	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 (24 Jan 2015).	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 (24 Jan 2015).	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	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. Current Science (Bangalore), 66(11): 822-824.	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.
6.03	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. Current Science (Bangalore), 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	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. Current Science (Bangalore), 66(11): 822-824.	1. Reproductive biology is not well understood in most of the species. Two categories are apparent so far: (i) species which exhibit dichogamy and protogyny and (ii) species in which the androecium and gynoecium mature at the same time. In species under the first category, only cross-pollination is possible. In the second category selfing is difficult because of the differential position of the anthers and the stigma, when they are mature.
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. Journal of Experimental Botany, 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		no evidence
7.01		no evidence
7.02	1. Scurlock et al. 2000 Bamboo: an overlooked biomass resource? Biomass and Bioenergy, 19:229-244. 2. Liese and Hamburg. 1987. Research on bamboo. Wood Science and Technology, 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. Current Science (Bangalore), 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 morphological features (i.e., wings) that would suggest bamboo seeds are adapted for wind.
7.05		no evidence
7.06		no evidence
7.07		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. Current Science (Bangalore), 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	Ward, J. S. 2012b. Running bamboo (<i>Phyllostachys</i> spp.) in Connecticut. Presentation given at the Connecticut Agriculture Experiment Station (CAES) Plant Science Day, 8/1/2012, by Jeffrey Ward, Station Forester, Department of Forestry and Horticulture, CAES	Effective: 1-2 years to control with glyphosate, (Roundup®), diclofenil (Casoron®, Barrier®)
8.04		no evidence
8.05		no evidence