

MN NWAC Risk Assessment Worksheet (04-2011)	Common Name	Latin Name
	Chinese Silver Grass, Eulalia Grass, Maiden Grass, Zebra Grass, Susuki Grass, Porcupine Grass	<i>Miscanthus sinensis</i> Andersson <i>(syn. Eulalia japonica, Miscanthus sinensis f. glaber, Miscanthus sinensis var. gracillimus)</i>
Reviewer	Affiliation/Organization	Date (mm/dd/yyyy)
James Calkins		09/12/2012

Chinese silver grass (*Miscanthus sinensis*) is a highly variable, clump-forming species that grows between 3 and 7 feet tall. Foliage can be green, bluish, and variegated (green and white and green and yellow). Chinese silver grass is a popular landscape plant because of its clump-forming habit, interesting foliage and texture, and showy flower heads. Many cultivars have been selected for landscape use. Cold hardiness, and flowering and seed production, varies significantly by cultivar; most cultivars are hardy in USDA Cold Hardiness Zones 5-9 with some being hardy in Zone 4.

Like other species of miscanthus, Chinese silver grass is tolerant of a variety of soils, but performs best on moist, fertile soils in full sun.



Box	Question	Answer	Outcome (i.e., Go to box:?)
1	Is the plant species or genotype non-native?	Yes; native to temperate Eastern Asia; China, Japan, Taiwan, and Korea.	Go to Box 3
2	Does the plant species pose significant human or livestock concerns or has the potential to significantly harm agricultural production?	No.	
	A. Does the plant have toxic qualities that pose a significant risk to livestock, wildlife, or people?	No.	

Box	Question	Answer	Outcome (i.e., Go to box:?)
	B. Does the plant cause significant financial losses associated with decreased yields, reduced quality, or increased production costs?	No.	
3	Is the plant species, or a related species, documented as being a problem elsewhere?	Wild Type – Yes (do not plant); Cultivars – No. Quinn et al. (2010) collected data from invasive <i>Miscanthus sinensis</i> populations in Ohio, New Jersey, North Carolina, Kentucky, and Pennsylvania; listed as potentially invasive on the Connecticut Invasive Plant List, but not banned; naturalized in 26 states; listed as invasive in western states (DiTomaso and Healy 2007).	If Yes – Go to Box 6 If No – Go to Box 4
4	Is the plant species' life history & growth requirements are understood?	Yes.	Go to Box 6
5	Gather and evaluate further information.	(Comments/Notes)	
6	Does the plant species have the capacity to establish and survive in Minnesota?	Yes; hardy to USDA Zone 4.	
	A. Is the plant, or a close relative, currently established in Minnesota?	Yes.	Go to Box 7
	B. Has the plant become established in areas having a climate and growing conditions similar to those found in Minnesota?		
7	Does the plant species have the potential to reproduce and spread in Minnesota?	Perhaps, but not documented; the species (likely wild types only) has so far only been documented as a problem in USDA Cold Hardiness Zones 5-8.	
	A. Does the plant reproduce by asexual/vegetative means?	Yes; rhizomes, but only forms dense clumps.	Go to Question B
	B. Are the asexual propagules effectively dispersed to new areas?	No.	Go to Question C
	C. Does the plant produce large amounts of viable, cold-hardy seeds?	Self-incompatible; wild type can produce significant numbers of seeds; cultivars can produce varying amounts of seeds if out-crossed; in one study germination rates were shown to vary between 4-39% for three populations (Ohio, Kentucky, North Carolina) (Quinn et al 2010).	If Yes – Go to Question F If No – Go to Question D

Box	Question	Answer	Outcome (i.e., Go to box:?)
	D. If this species produces low numbers of viable seeds, does it have a high level of seed/seedling vigor or do the seeds remain viable for an extended period?	Unknown.	If Yes – Go to Question F If No – Go to Question E
	E. Is this species self-fertile?	No; all <i>Miscanthus</i> spp. are self-incompatible and require out-crossing to produce viable seeds.	Go to Question G
	F. Are sexual propagules – viable seeds – effectively dispersed to new areas?	In general, little information is currently available, but one paper has suggested that about 4% of seeds can travel over 100 meters and has argued that long range dispersal events may have contributed to the invasive spread of <i>Miscanthus sinensis</i> in the eastern US (Quinn et al 2010).	No – Go to Question G If Yes – Go to Question I
	G. Can the species hybridize with native species (or other introduced species) and produce viable seed and fertile offspring in the absence of human intervention?	Yes; other cultivars.	Go to Question H
	H. If the species is a woody (trees, shrubs, and woody vines) is the juvenile period less than or equal to 5 years for tree species or 3 years for shrubs and vines?	No.	Risk likely limited, but unknown – Watch
	I. Do natural controls exist, species native to Minnesota, that are documented to effectively prevent the spread of the plant in question?	No.	
8	Does the plant species pose significant human or livestock concerns or has the potential to significantly harm agricultural production, native ecosystems, or managed landscapes?	No.	
	A. Does the plant have toxic qualities, or other detrimental qualities, that pose a significant risk to livestock, wildlife, or people?	No.	

Box	Question	Answer	Outcome (i.e., Go to box:?)
	B. Does, or could, the plant cause significant financial losses associated with decreased yields, reduced crop quality, or increased production costs?	No.	
	C. Can the plant aggressively displace native species through competition (including allelopathic effects)?	Yes, but unlikely; early succession species and shade intolerant, a poor competitor.	
	D. Can the plant hybridize with native species resulting in a modified gene pool and potentially negative impacts on native populations?	No.	
	E. Does the plant have the potential to change native ecosystems (adds a vegetative layer, affects ground or surface water levels, etc.)?	Yes, but unlikely.	
	F. Does the plant have the potential to introduce or harbor another pest or serve as an alternate host?	Apparently not; no specific information found.	
9	Does the plant species have clearly defined benefits that outweigh associated negative impacts?	Yes; a popular landscape plant.	
	A. Is the plant currently being used or produced and/or sold in Minnesota or native to Minnesota?	Yes; many named cultivars are sold and grown in Minnesota.	
	B. Is the plant an introduced species and can its spread be effectively and easily prevented or controlled, or its negative impacts minimized through carefully designed and executed management practices?	Yes.	
	C. Is the plant native to Minnesota?	No.	
	D. Is a non-invasive, alternative plant material commercially available that could serve the same purpose as the plant of concern?	Several native prairie grasses have similar growth habits, but not as showy.	

Box	Question	Answer	Outcome (i.e., Go to box:?)
	E. Does the plant benefit Minnesota to a greater extent than the negative impacts identified at Box #8?	Has been studied as a potential forage crop and used as forage.	
10	Should the plant species be enforced as a noxious weed to prevent introduction &/or dispersal; designate as prohibited or restricted?		
	A. Is the plant currently established in Minnesota?	Yes.	
	B. Does the plant pose a serious human health threat?	No.	
	C. Can the plant be reliably eradicated (entire plant) or controlled (top growth only to prevent pollen dispersal and seed production as appropriate) on a statewide basis using existing practices and available resources?	Yes; mowing and glyphosate.	
11	Should the plant species be allowed in Minnesota via a species-specific management plan; designate as specially regulated?		
Final Results of Risk Assessment			
	Review Entity	Comments	Outcome
	NWAC Listing Subcommittee	Risk thought to be limited in MN, but not well known at this time.	Add to NWAC Watch list.
	NWAC Full-group		Added to NWAC Watch List.
	MDA Commissioner		
File #	MDARA00014MISSIN_1_18_2013		

References:

(List any literature, websites, and other publications)

1. Connecticut Invasive Plant List; (<http://www.cipwg.uconn.edu/pdfs/CTInvasivePlantList2011-ScientificName.pdf>) (*Miscanthus sinensis* listed as potentially invasive, but not banned).
2. DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Other Western States. Oakland (CA): University of California Division of Agriculture and Natural Resources. Publication 3488.
3. Quinn, L., D. Allen, and J. Stewart. 2010. Invasiveness Potential of *Miscanthus sinensis*: Implications for Bioenergy Production in the United States. *Global Change Biology-Bioenergy* 2(6) 310-320. <http://onlinelibrary.wiley.com/doi/10.1111/j.1757-1707.2010.01062.x/abstract>
4. Quinn, L. D. Matlaga, R. Stewart, and A. Davis. 2011. Empirical Evidence of Long-distance Dispersal in *Miscanthus sinensis* and *Miscanthus x giganteus*. *Invasive Plant Science and Management* 4 (1):142-150. <http://www.bioone.org/doi/abs/10.1614/IPSM-D-10-00067.1>
5. USDA Natural Resources Conservation Service; <http://plants.usda.gov/java/profile?symbol=MISI> (*Miscanthus sinensis* listed as naturalized in 26 states).
6. University of Minnesota. 2012. *Miscanthus* Ornamental & Invasive Grass. <http://miscanthus.cfans.umn.edu>