

**Family:** *Poaceae*

**Taxon:** *Leptochloa panicea*

**Synonym:** *Eleusine filiformis* Pers.  
*Eleusine mucronata* Michx.  
*Festuca filiformis* Lam.  
*Leptochloa attenuata* (Nutt.) Steud.  
*Leptochloa filiformis* (Pers.) P. Beauv.  
*Leptochloa filiformis* var. *attenuata* (Nutt.) St  
*Leptochloa mucronata* auct.

**Common Name:** Mississippi sprangletop  
red sprangletop  
thread sprangletop

<b>Questionnaire :</b>	current 20090513	<b>Assessor:</b>	Chuck Chimera	<b>Designation:</b> H(HPWRA)
<b>Status:</b>	Assessor Approved	<b>Data Entry Person:</b>	Chuck Chimera	<b>WRA Score 12</b>
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)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
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	?
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)	y
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	
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	
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	y
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	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	n
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	y
704	Propagules adapted to wind dispersal	y=1, n=-1	
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
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: H(HPWRA)

WRA Score 12

**Supporting Data:**

101	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Is the species highly domesticated? No] No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Species suited to tropical or subtropical climate(s) 2-high] "Leptochloa panicea subsp. panicea occurs in southeast Asia, Africa, China, Japan, and Papua New Guinea (where it is probably introduced)."
201	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Species suited to tropical or subtropical climate(s)? 2 -high] "DISTRIBUTION Africa: north, west tropical, west-central tropical, northeast tropical, east tropical, southern tropical, south, and western Indian ocean. Asia-temperate: western Asia, Arabia, China, and eastern Asia. Asia tropical: India, Indo-China, Malesia, and Papuasias. Australasia: Australia. Pacific: northwestern. North America: north-central USA, northeast USA, southwest USA, south-central USA, southeast USA, and Mexico. South America: Mesoamericana, Caribbean, northern South America, western South America, Brazil, and southern South America."
202	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Quality of climate match data 2-high] "Leptochloa panicea subsp. panicea occurs in southeast Asia, Africa, China, Japan, and Papua New Guinea (where it is probably introduced)."
203	1998. Snow, N.. Nomenclatural changes in <i>Leptochloa</i> P. Beauvois sensu lato (Poaceae, Chloridoideae). <i>Novon</i> . 8: 77-80.	[Broad climate suitability (environmental versatility)? Yes] "As recognized by Snow (1997a), <i>Leptochloa panicea</i> sensu lato is a polymorphic species that ranges throughout much of the warm temperate and tropical regions of the world." [Distribution suggest broad climatic tolerances]
204	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Native or naturalized in regions with tropical or subtropical climates? Yes] " <i>Leptochloa panicea</i> subsp. panicea occurs in southeast Asia, Africa, China, Japan, and Papua New Guinea (where it is probably introduced)."
205	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Does the species have a history of repeated introductions outside its natural range? Unknown. Broad natural distribution, but probably also widely introduced unintentionally ] "DISTRIBUTION Africa: north, west tropical, west-central tropical, northeast tropical, east tropical, southern tropical, south, and western Indian ocean. Asia-temperate: western Asia, Arabia, China, and eastern Asia. Asia tropical: India, Indo-China, Malesia, and Papuasias. Australasia: Australia. Pacific: northwestern. North America: north-central USA, northeast USA, southwest USA, south-central USA, southeast USA, and Mexico. South America: Mesoamericana, Caribbean, northern South America, western South America, Brazil, and southern South America."
301	2004. Snow, N.. A first report of the exotic <i>Leptochloa panicea</i> subsp. <i>brachiata</i> (Poaceae) for Western Australia. <i>Nuytsia</i> . 15(2): 325–326.	[Naturalized beyond native range? Yes] " <i>Leptochloa panicea</i> subsp. <i>brachiata</i> has the potential to become a widespread weed in Australia since virtually any part of the continent under 1,000 metres elevation combining seasonal moisture and a disturbed soil surface represents potential habitat. Given the cooler climatic regime of Tasmania, it is less likely it would become established there. This taxon, which recently also has been known by the names <i>Leptochloa mucronata</i> (Lam.) P. Beauv. and <i>L. filiformis</i> (Michx.) Kunth (Snow and Davidse 1993; Snow 1998), can be found on checklists on the internet of species considered to be weedy threats to the viticulture industry of WA (e.g. <a href="http://agspsrv34.agric.wa.gov.au/programs/a_p/industry/links/pdf/WTST.pdf">http://agspsrv34.agric.wa.gov.au/programs/a_p/industry/links/pdf/WTST.pdf</a> .) Another neotropical member of the genus, <i>L. fusca</i> subsp. <i>uninervia</i> , is also considered a threat to the vineyards in WA and becoming increasingly widespread in Australia (Snow and Simon 1999; Sharp and Simon 2002)."
301	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Naturalized beyond native range? Yes] "Introduced. Coastal districts and inland areas of Qld south to Townsville. Native tin America in warm-temperate and tropical regions, introduced to western Africa. A weed of disturbed places, usually within pastures and crops such as sorghum and sugar-cane."
301	2011. Ho, J.. O'ahu Invasive Species Committee Pest Response Technician, 25 August 2011.	[Naturalized beyond native range? Yes] "I've attached a google map photo showing the area that I noticed most of the plants and approximately where I took that sample from. I may have been grossly underestimating the number of plants. The clump that I took the sample from probably had 10-15 plants in it " [Map shows a Waimanalo Nursery]

301	2011. Lau, A.. Oahu Early Detection Botanist. Pers. Comm. 25 August 2011.	[Naturalized beyond native range? Yes] "Jonathan recently found this grass spreading in a large Waimanalo nursery, sparingly naturalized along the margins of maintained areas as well as coming up as a weed in potted plants, maybe 40 or 50 plants total"
302	1992. Roy, G.P./Shukla, B.K./Datt, B.. Flora of Madhya Pradesh: Chhatarpur and Damoh. APH Publishing, New Delhi, India	[Garden/amenity/disturbance weed? A disturbance weed with negative agricultural effects. See 3.03] "Occasionally found in unused ground near habitations, waste corners of fields and gardens."
302	2007. Rhoads, A.F./Block, T.A./Aniśko, A.. The plants of Pennsylvania: an illustrated manual. University of Pennsylvania Press, Philadelphia, PA	[Garden/amenity/disturbance weed? A disturbance weed with negative agricultural effects. See 3.03] "wharves, railroad sidings, and rubbish dumps; mostly SE, but probably elsewhere;"
302	2010. Harris, W.F.. The identification of some of the more common native Oklahoma grasses by vegetative characters. Oklahoma Native Plant Record. 10: 4-33.	[Garden/amenity/disturbance weed? A disturbance weed with negative agricultural effects. See 3.03] "Distribution: A weed in moist cultivated fields and waste places throughout most of the state." [Oklahoma]
303	1983. International Rice Research Institute. Proceedings of the Conference on Weed Control in Rice: 31 August-4 September 1981. Int. Rice Res. Inst., Manila, Philippines	[Agricultural/forestry/horticultural weed? Yes] "Special weed problems are associated with deepwater and floating rice (De Datta 1980). In Thailand where deepwater rice is grown in large areas, principal weeds associated with this culture are Echinochloa stagnina, E. picta, Ischaemum rugosum, Leptochloa chinensis, L. panicea, Pentapetes phoenicia, and Melochia concataenata. These weeds are usually not a problem in conventionally managed transplanted rice."
303	1991. Fournet, J./Hammerton, J.L.. Weeds of the Lesser Antilles. Institut National De La Recherche Agronomique, Paris, France	[Agricultural/forestry/horticultural weed? Yes] "Ecology and biology: Waste places and cultivated soils in many environments. Propagated by seeds. Main infested crops: Vegetables, root crops."
303	1998. Waterhouse, B. M./Mitchell, A. A.. Northern Australia Quarantine Strategy: weeds target list. Second edition. Miscellaneous Publication No. 6/98. Australian Quarantine & Inspection Service, Canberra	[Agricultural/forestry/horticultural weed? Yes] "A weed of rice, corn, cotton, soybeans, sugarcane, peanuts and pastures"
303	1999. Sandhu, K.S./Singh, T./Singh, S.. Weed Composition of Maize (Zea mays) Fields in Punjab. Indian Journal of Weed Science. 32(1&2): 18-24.	[Agricultural/forestry/horticultural weed? Yes] "Survey of weed flora of maize fields conducted in phases thrice from 1980 to 1983, 1984 to 1990 and 1991–1996 revealed the presence of 75 weed species in maize crop fields in Punjab. The predominant weeds associated with the crop were Eleusine aegyptiacum (L.) Desf, Eragrostis tenella (L.) Beauv., Leptochloa panicea (Retz) Ohwi., Trianthema portulacastrum L., Digera arvensis Forsk. and Cyperus rotundus L. Besides these, Panicum colonum (L.) Link, Digitaria ciliaris (Retz.) Koel, Sorghum halepense (L.) Pers., Commelina benghalensis (L.), Celosia argentea (L.), Cleom viscosa (L.), Euphorbia hirta (L.), Amaranthus viridis (L.) and Cyperus compressus (L.) were also serious weeds at some locations. Some new weeds like Brachiaria reptans (L.) Gardn. & Hubb., Malvastrum coromandelianum (L.) Garcke, Polygonum glabrum (L.), Cyperus squarossus (L.), Amaranthus punjans (L.), Majus pumilus (Burm. F.) Steenis, Ageratum conyzoides (L.) and Lindernia parviflora (Roxb.) Haines are finding entry in maize fields in some pockets."
303	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Agricultural/forestry/horticultural weed? Yes] "A weed of disturbed places, usually within pastures and crops such as sorghum and sugar-cane."
303	2006. Singh, S./Bhushan, L./Ladha, J.K./Gupta, R.K./Rao, A.N./Sivaprasad, B.. Weed management in dry-seeded rice (Oryza sativa) cultivated in the furrow-irrigated raised-bed planting system. Crop Protection. 25: 487–495.	[Agricultural/forestry/horticultural weed? Yes] "The major weeds associated with dry seeded rice in the FIRBS during both years were Echinochloa crus-galli (L.) P. Beauv., Echinochloa colona (L.) Link, Dactyloctenium aegyptium (L.) Willd, Leptochloa panicea (Retz.) Ohwi among grasses; and C. axillaris, E. hirta, Lindernia sp., C. benghalensis, E. prostrata, T. portulacastrum, and P. oleracea among weeds."
304	2007. Randall, R.P.. Global Compendium of Weeds - Leptochloa panicea [Online Database]. <a href="http://www.hear.org/gcw/species/leptochloa_panicea/">http://www.hear.org/gcw/species/leptochloa_panicea/</a>	[Environmental weed? Potentially. Listed as an environmental weed, but most references refer to its occurrence in disturbed, waste places or as a weed of agriculture] See 3.02 & 3.03

305	2004. Benvenuti, S./Dinelli, G./Bonetti, A.. Germination ecology of <i>Leptochloa chinensis</i> : a new weed in the Italian rice agro-environment. <i>Weed Research</i> . 44: 87–96.	[Congeneric weed? Yes] " <i>Leptochloa chinensis</i> is a new weed that has been found with increasing frequency in Italian rice paddies. The germination ecology of <i>L. chinensis</i> seeds was studied in order to investigate the development mechanisms and survival strategy of this weed in rice paddies of northern Italy. <i>Leptochloa chinensis</i> seeds showed no dormancy and exhibited germination even in anoxic conditions. Germination was strongly influenced by temperature (minimum around 15°C; optimal 25–35°C) and light (phytochrome dependent). Temperature fluctuation caused an increase of seed germination in the dark. Seed burial also strongly inhibited germination and emergence of this species. At 5 cm seed burial only 5% of seedlings emerged in flooded conditions, while at the same depth, but with no flooding, no seedling emergence was observed. This phenomenon was not due to oxygen depletion, as germination was not inhibited by complete anoxia, as demonstrated by the fact that some seedlings did emerge in flooding conditions when water was no deeper than 6 cm. Seed burial and concomitant flooding induced an unusual germination: first coleoptile emergence and subsequently emergence of the radicle was observed. The possible exploitation of this knowledge for weed management is discussed."
401	1977. Holm, L.G./Plucknett, D.L./Pancho, J.V./Herberger, J.P.. The world's worst weeds: distribution and biology. East-West Center, University Press of Hawaii, Honolulu, HI	[Produces spines, thorns or burrs? No] "A strongly tufted, annual grass"
402	2011. WRA Specialist. Personal Communication.	[Allelopathic? No] A well-documented weed of agriculture, with no mention or evidence of allelopathic properties.
403	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Parasitic? No] "Annual; caespitose. Butt sheaths herbaceous; green." [Poaceae - Not parasitic]
404	2009. Ahmad, F./Khan, M.A./Ahmad, M./Zafar, M./Nazir, A./Marwat, S.K.. Taxonomic studies of grasses and their indigenous uses in the salt range area of Pakistan. <i>African Journal of Biotechnology</i> . 8(2): 231-249.	[Unpalatable to grazing animals? No] "Table 2. Phytogeography of grasses of Salt Range of Pakistan." [ <i>Leptochloa panicea</i> ... Economic Importance: Fodder]
405	2009. Bryson, C.T./DeFelice, M.S.. Weeds of the South. University of Georgia Press, Athens, GA	[Toxic to animals? No] "Toxic Properties: None reported." [No evidence]
405	2010. Harris, W.F.. The identification of some of the more common native Oklahoma grasses by vegetative characters. <i>Oklahoma Native Plant Record</i> . 10: 4-33.	[Toxic to animals? No] "Table 2. Phytogeography of grasses of Salt Range of Pakistan." [ <i>Leptochloa panicea</i> ... Economic Importance: Fodder]
406	2011. Sugawara, K.. Illustrated Encyclopedia of Forage Crop Diseases. <a href="http://virtual.chapingo.mx/dona/paginaCBasicos/EnfermedadesForrajes.pdf">http://virtual.chapingo.mx/dona/paginaCBasicos/EnfermedadesForrajes.pdf</a>	[Host for recognized pests and pathogens? Potentially] "Disease of Ito-azegaya ( <i>Leptochloa panicea</i> (Retz.) Ohwi) - Black choke ... Black choke causal organism: <i>Ephelis</i> sp., Imperfect fungi Fungal disease which causes head blight and occurs mainly in the warm regions. After heading, the whole infected heads are covered with gray to black colony. Later the fungus fasten each head spike and the whole head looks grayish black moldy. White colony appears on the surface of the leaf like the stripe along the leaf vein. It is reported that the causal organism is infected in the entire plant as an endphyte and the infected plant becomes resistant to insects such as grasshopper."
407	2009. Bryson, C.T./DeFelice, M.S.. Weeds of the South. University of Georgia Press, Athens, GA	[Causes allergies or is otherwise toxic to humans? No] "Toxic Properties: None reported." [No evidence]
408	1977. Holm, L.G./Plucknett, D.L./Pancho, J.V./Herberger, J.P.. The world's worst weeds: distribution and biology. East-West Center, University Press of Hawaii, Honolulu, HI	[Creates a fire hazard in natural ecosystems? No] No evidence
408	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Creates a fire hazard in natural ecosystems? No] "A weed of disturbed places, usually within pastures and crops such as sorghum and sugar-cane." [No mention of increased fire hazard in this or other references listing <i>L. panicea</i> as a weed]
408	2009. Bryson, C.T./DeFelice, M.S.. Weeds of the South. University of Georgia Press, Athens, GA	[Creates a fire hazard in natural ecosystems? No] No evidence
409	1977. Holm, L.G./Plucknett, D.L./Pancho, J.V./Herberger, J.P.. The world's worst weeds: distribution and biology. East-West Center, University Press of Hawaii, Honolulu, HI	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Can grow in open sun or in light shade"

410	1977. Holm, L.G./Plucknett, D.L./Pancho, J.V./Herberger, J.P.. The world's worst weeds: distribution and biology. East-West Center, University Press of Hawaii, Honolulu, HI	[Tolerates a wide range of soil conditions? Possibly] "Associated with wetlands, swamps, or streams in open lowland regions. Cannot withstand extremely dry or extremely wet soils, is frequently associated with heavy soils, and is found in waste places, swampy areas, gardens, roadsides, disturbed soils, rice fields, along streams, and in teak forests."
410	2011. Lady Bird Johnson Wildflower Center. Native Plant Database - <i>Leptochloa panicea</i> ssp. <i>brachiata</i> . <a href="http://www.wildflower.org/plants/result.php?id_plant=LEPAB">http://www.wildflower.org/plants/result.php?id_plant=LEPAB</a>	[Tolerates a wide range of soil conditions? Possibly] "Native Habitat: Moist soil and mud"
411	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Climbing or smothering growth habit? No] "HABIT Annual; caespitose. Butt sheaths herbaceous; green. Culms decumbent; 25–110 cm long. Leaf-sheaths pilose. Ligule an eciliate membrane. Leaf-blades 3–25 cm long; 1.5–7 mm wide. Leaf-blade surface pilose; sparsely hairy; hairy on both sides; with tubercle-based hairs. Leaf-blade apex attenuate."
412	1977. Holm, L.G./Plucknett, D.L./Pancho, J.V./Herberger, J.P.. The world's worst weeds: distribution and biology. East-West Center, University Press of Hawaii, Honolulu, HI	[Forms dense thickets? No]
412	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Forms dense thickets? No evidence from Australia]
412	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 <a href="http://flora.huh.harvard.edu/china/mss/volume22/index.htm">http://flora.huh.harvard.edu/china/mss/volume22/index.htm</a>	[Forms dense thickets? No evidence from China] "Roadsides, rice fields, damp weedy places. Anhui, Fujian, Guangdong, Guizhou, Hainan, Henan, Hubei, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [India, Indonesia, Japan, Malaysia, Philippines, Sri Lanka, Thailand, Vietnam; Africa, America]."
412	2009. Bryson, C.T./DeFelice, M.S.. Weeds of the South. University of Georgia Press, Athens, GA	[Forms dense thickets? No evidence from SE United States]
501	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Aquatic? No] "Annual; caespitose. Butt sheaths herbaceous; green." [Terrestrial]
502	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Grass? Yes] Poaceae
503	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Nitrogen fixing woody plant? No] Poaceae
504	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "HABIT Annual; caespitose. Butt sheaths herbaceous; green. Culms decumbent; 25–110 cm long. Leaf-sheaths pilose. Ligule an eciliate membrane. Leaf-blades 3–25 cm long; 1.5–7 mm wide. Leaf-blade surface pilose; sparsely hairy; hairy on both sides; with tubercle-based hairs. Leaf blade apex attenuate."
601	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Evidence of substantial reproductive failure in native habitat? No] No evidence

602	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Produces viable seed? Yes] "FERTILE SPIKELETS Spikelets comprising 2–5 fertile florets; with diminished florets at the apex. Spikelets elliptic; laterally compressed; 1.9–2.5 mm long; breaking up at maturity; disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas. GLUMES Glumes persistent; dissimilar; shorter than spikelet. Lower glume lanceolate; 0.7–1.5 mm long; 0.8–0.9 length of upper glume; membranous; 1-keeled; 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic; 0.9–1.6 mm long; 1.1–1.3 length of adjacent fertile lemma; membranous; 1-keeled; 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse; mucronate. FLORETS Fertile lemma oblong; 0.8–1.2 mm long; membranous; keeled; 3 -veined. Lemma midvein pubescent. Lemma lateral veins close to margins. Lemma surface puberulous. Lemma margins pubescent. Lemma apex dentate; 2 -fid; obtuse. Palea 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped. FLOWER Anthers 3; oblong; 0.2–0.3 mm long. FRUIT Caryopsis with adherent pericarp; ellipsoid; isodiametric; trigonous; 0.5 mm long; dark brown."
603	2011. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	1990. Chapman, G.P. (ed.). Reproductive versatility in the grasses. Cambridge University Press, Cambridge, UK	[Self-compatible or apomictic? Possibly] "Table 1.1. Grass genera known to exhibit inbreeding (autogamy), cleistogamy, apomixis..." [Leptochloa listed as exhibiting cleistogamy - automatic self-pollination describes the trait of certain plants to propagate by using non-opening, self-pollinating flowers. Unknown if <i>L. panicea</i> is capable of this method of reproduction]
605	2006 (onwards). Clayton, W.D./Harman, K.T./Williamson, H.. Grassbase - The Online World Grass Flora. <a href="http://www.kew.org/data/grasses-db.html">http://www.kew.org/data/grasses-db.html</a> .	[Requires specialist pollinators? No] "Spikelets comprising 2–5 fertile florets; with diminished florets at the apex. Spikelets elliptic; laterally compressed; 1.9–2.5 mm long; breaking up at maturity; disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas." [Poaceae - wind-pollinated]
606	2010. Harris, W.F.. The identification of some of the more common native Oklahoma grasses by vegetative characters. Oklahoma Native Plant Record. 10: 4-33.	[Reproduction by vegetative fragmentation? No] "Annual 30-90 cm tall, erect, geniculate below, branched...Rhizomes absent." [No evidence, and annual grasses lacking rhizomes unlikely to spread vegetatively]
607	2005. Australian Biological Resources Study. Flora of Australia: Poaceae 3, Volume 44. CSIRO Publishing, Collingwood, Australia	[Minimum generative time (years)? 1] "Annuals, tufted."
701	2007. Rhoads, A.F./Block, T.A./Aniško, A.. The plants of Pennsylvania: an illustrated manual. University of Pennsylvania Press, Philadelphia, PA	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "wharves, railroad sidings, and rubbish dumps; mostly SE, but probably elsewhere;" [Distribution suggests seeds likely dispersed unintentionally]
701	2009. Bryson, C.T./DeFelice, M.S.. Weeds of the South. University of Georgia Press, Athens, GA	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "cultivated areas, fields, roadsides, wet ditches, and waste sites; apparently native to the Americas." [Distribution suggests seeds likely dispersed unintentionally]
702	1998. Waterhouse, B. M./Mitchell, A. A.. Northern Australia Quarantine Strategy: weeds target list. Second edition. Miscellaneous Publication No. 6/98. Australian Quarantine & Inspection Service, Canberra	[Propagules dispersed intentionally by people? No] "Seed dispersed by water and animals and as a contaminant of produce" [Species with widespread natural distribution, and most references comment on inadvertent spread of seeds]
703	1998. Waterhouse, B. M./Mitchell, A. A.. Northern Australia Quarantine Strategy: weeds target list. Second edition. Miscellaneous Publication No. 6/98. Australian Quarantine & Inspection Service, Canberra	[Propagules likely to disperse as a produce contaminant? Yes] "Seed dispersed by water and animals and as a contaminant of produce"
703	2008. Rajput, M.T./Tahir, S.S./Ahmed, B./Arain, M.A.. Checklist of the weeds found in cotton crops, cultivated in Taluka Ubauro, District Sukkur, Pakistan. Pakistan Journal of Botany. 40(1): 65-70.	[Propagules likely to disperse as a produce contaminant? Yes] "Eleven weeds species viz., <i>Briza minor</i> L., <i>Cenchrus ciliaris</i> L., <i>Cynodon dactylon</i> (L.) Pers., <i>Dactyloctenium aegyptium</i> (L.) Willd., <i>Digitaria nodosa</i> L., <i>Echinochloa colona</i> (L.) L., <i>Eriochloa procera</i> (Retz) Hubbard., <i>Imperata cylindrica</i> (L.) Roeschel., <i>Leptochloa panicea</i> (Retz) Ohwi., <i>Ochthochloa compressa</i> (Forssk) Hillu., <i>Pennisetum divisum</i> (Gmel.) Henr., and <i>Sporobolus coromandelianus</i> (Retz.). Kunth., were reported by Hussain & Rashid (1989) from the crops of wheat, corn, sugar cane, orchards, tobacco, vegetables, melons and rice."

703	2009. Canadian Seed Institute. Weed Seeds Order (WSO) Workshop II "Initiating Change". National Forum on Seed, Ottawa, Canada <a href="http://www.nationalforumonseed.com/News/WSO%20-March_11_Workshop_Meeting_Report%20ENGLISH.pdf">http://www.nationalforumonseed.com/News/WSO%20-March_11_Workshop_Meeting_Report%20ENGLISH.pdf</a>	[Propagules likely to disperse as a produce contaminant? Yes] "Pathway: seed contaminant Weed Risk Assessment: none Comments: One of world's worst weeds Mostly a weed in the tropics, but also in the southern USA."
703	2009. Muhammad, S./Khan, Z./Cheema, T.A.. Pakistan Journal of Weed Science Research. 15(1): 91-105.	[Propagules likely to disperse as a produce contaminant? Yes] "An ecological study was conducted to record the distribution of weeds in wheat, maize and potato crop fields of Tehsil Gojra, District Toba Tek Singh, Punjab. Sixty-seven weed species were reported from the study area out of which two belonging to monocot families, and twenty seven to dicot families. Thirty-five weed species were found only in wheat, thirty-four in maize and twenty four in potato crop fields while twenty-four weed species found common either in case of wheat-maize, maize-potato or wheat potato combinations. Only two weed species were common in all three crops, i.e. <i>Convolvulus arvensis</i> L. and <i>Cynodon dactylon</i> (L.) Pers. having importance value (I.V) of 53.58 and 57.13 respectively." [Includes <i>L. panicea</i> ]
703	2009. Norsworthy, J.K./Smith, K.L./Steckel, L.E./Koger, C.H.. Weed Seed Contamination of Cotton Gin Trash. Weed Technology. 23(4): 574-580.	[Propagules likely to disperse as a produce contaminant? Yes] "Red Sprangletop. Red sprangletop was the fourth most frequent weed found in gin trash (Table 1); however, it was not present in any sample from Tennessee or Mississippi (Table 2). Furthermore, it was rarely found in samples collected from northeast Arkansas, except for one gin, which was the most southern gin in this region. Red sprangletop density in 9% of the samples from this gin exceeded 60,000 germinable seeds per metric ton of trash. In Chicot County, the southeastern-most county in Arkansas, 19 of 34 samples (66%) contained red sprangletop. Although red sprangletop was one of the more prevalent weeds of cotton fields in Arkansas, it is not among the weeds that most concern cotton consultants (Norsworthy et al. 2007)."
704	1998. Waterhouse, B. M./Mitchell, A. A.. Northern Australia Quarantine Strategy: weeds target list. Second edition. Miscellaneous Publication No. 6/98. Australian Quarantine & Inspection Service, Canberra	[Propagules adapted to wind dispersal? Possibly] "Seed dispersed by water and animals and as a contaminant of produce" [Although wind not identified as a dispersal vector, it is possible that seeds may be dispersed short distances by wind as with many other grasses]
705	2004. Snow, N.. A first report of the exotic <i>Leptochloa panicea</i> subsp. <i>brachiata</i> (Poaceae) for Western Australia. Nuytsia. 15(2): 325-326.	[Propagules water dispersed? Yes] "Many members of <i>Leptochloa</i> thrive in disturbed, seasonally moist habitats, such as along the receding margins of reservoirs, on mesic or irrigated cultivated and livestock lands, along seasonal watercourses (Snow & Peterson 1992) or floodplains, and along roadways." [Distribution pattern suggests seeds likely moved, and establishment enhanced, by water]
706	1998. Waterhouse, B. M./Mitchell, A. A.. Northern Australia Quarantine Strategy: weeds target list. Second edition. Miscellaneous Publication No. 6/98. Australian Quarantine & Inspection Service, Canberra	[Propagules bird dispersed? No. Unlikely, as not fleshy-fruited] "Seed dispersed by water and animals and as a contaminant of produce"
707	1998. Waterhouse, B. M./Mitchell, A. A.. Northern Australia Quarantine Strategy: weeds target list. Second edition. Miscellaneous Publication No. 6/98. Australian Quarantine & Inspection Service, Canberra	[Propagules dispersed by other animals (externally)? Yes] "Seed dispersed by water and animals and as a contaminant of produce" [Presumably by being stuck to fur or in mud on hooves]
708	2009. Ahmad, F./Khan, M.A./Ahmad, M./Zafar, M./Nazir, A./Marwat, S.K.. Taxonomic studies of grasses and their indigenous uses in the salt range area of Pakistan. African Journal of Biotechnology. 8(2): 231-249.	[Propagules survive passage through the gut? Unknown] "Table 2. Phytoecography of grasses of Salt Range of Pakistan." [Possible that seeds may be ingested, but unknown if they maintain viability following gut passage]
801	2009. Bean, T.M./Hannum, C.A.. Soil seed bank characteristics on buffelgrass-seeded, retired farmland in Avra Valley, Arizona. University of Arizona, Tucson, AS <a href="http://www.tucsonaz.gov/ocsd/docs/CMS1_035102.pdf">http://www.tucsonaz.gov/ocsd/docs/CMS1_035102.pdf</a>	[Prolific seed production (>1000/m <sup>2</sup> )? No] "Seed density for <i>L. panicea</i> , <i>P. patagonica</i> , and <i>Veronica peregrina</i> was higher for MAM treatments than for BTM or MAB treatments." [Reported densities much lower than 1000/m <sup>2</sup> ]

802	1999. Baskin, C.C./Baskin, J.M./Chester, E.W.. Seed germination ecology of the annual grass <i>Leptochloa panicea</i> ssp. <i>mucronata</i> and a comparison with <i>L. panicoides</i> and <i>L. fusca</i> . <i>Acta Oecologica</i> . 20(5): 571–577.	[Evidence that a persistent propagule bank is formed (>1 yr)? Possibly under certain conditions] "Abstract — <i>Leptochloa panicea</i> ssp. <i>mucronata</i> is an annual grass that grows in relatively dry habitats. Requirements for dormancy loss and germination were determined for seeds of this species and compared to those of two species from wet habitats. Seeds of <i>L. panicea</i> were dormant at maturity in autumn, but when exposed to actual or simulated autumn temperatures (e.g. 20/10, 15/6 °C), they entered conditional dormancy and thus germinated to high percentages in light at 35/20 °C. Seeds buried in non flooded soil exposed to natural seasonal temperature changes in Kentucky (USA) were non-dormant by the following summer and germinated to 80–100 % in light at 25/15, 30/15 and 35/20 °C. Seeds buried in non-flooded soil exhibited an annual conditional dormancy/non dormancy cycle, with seeds mostly germinating to 80–100 % in light at 30/15 and 35/20 °C throughout the year but to 80–100 % in light at 25/15 °C only in summer. Results for <i>L. panicea</i> were compared to published data for <i>L. panicoides</i> and <i>L. fusca</i> . Whereas seeds of <i>L. panicea</i> buried in flooded soil failed to come out of dormancy, those of <i>L. panicoides</i> , an annual of moist habitats such as mudflats, exhibited an annual conditional dormancy/non-dormancy cycle, and those of <i>L. fusca</i> , a semi-aquatic, required flooding for both dormancy loss and germination. Differences in dormancy breaking and germination responses of seeds of <i>Leptochloa</i> species may help to explain why this genus occupies a wide range of habitats with regard to soil moisture conditions."
803	2006. Singh, S./Bhushan, L./Ladha, J.K./Gupta, R.K./Rao, A.N./Sivaprasad, B.. Weed management in dry-seeded rice ( <i>Oryza sativa</i> ) cultivated in the furrow-irrigated raised-bed planting system. <i>Crop Protection</i> . 25: 487–495.	[Well controlled by herbicides? Possibly No] "All herbicides caused less than 50% reduction in the density of <i>L. panicea</i> , except Pendimethalin fb chlorimuron+metsulfuron, which caused 75% reduction." [Herbicide treatments not 100% effective]
803	2011. WeedScience.org. Group A/1 Resistant Sprangletop ( <i>Leptochloa chinensis</i> ) Thailand. <a href="http://www.weedscience.org/Case/Case.asp?ResistID=5199">http://www.weedscience.org/Case/Case.asp?ResistID=5199</a>	[Well controlled by herbicides? Unknown] "Sprangletop ( <i>Leptochloa chinensis</i> ) is a monocot weed in the Poaceae family. In Thailand this weed first evolved resistance to Group A/1 herbicides in 2002 and infests rice. Group A/1 herbicides are known as ACCase inhibitors (Inhibition of acetyl CoA carboxylase (ACCcase)). Research has shown that these particular biotypes are resistant to fenoxaprop-P-ethyl, profoxydim, and quizalofop-P-ethyl and they may be cross resistant to other Group A/1 herbicides." [Related species shows herbicide resistance]
804	2011. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]