

Taxon: <i>Paspalum atratum</i> Swallen	Family: Poaceae
Common Name(s): atra paspalum atratum capim-pojuca pasto pojuca	Synonym(s):

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 9 Feb 2018
WRA Score: 8.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Tropical Grass, Forage, Shade-Tolerant, Apomictic, Water-Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
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	n
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	y
302	Garden/amenity/disturbance weed		
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		
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		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		

Qsn #	Question	Answer Option	Answer
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
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	n
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	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)		
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal		
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)		
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	Cultivars available, but no evidence of domestication
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Feb 2018]	"Native Southern America Brazil: Brazil Goias, Mato Grosso, Minas Gerais"
202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Feb 2018]	
203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Occurs between about 13.9°S in Bolivia and 20°S in Brazil, to 600 m asl. These areas have an average annual temperature of about 23°C. However, it has adapted to areas with average annual temperatures as low as 20°C, but is best grown between about 22 and 27°C. <i>P. atratum</i> is primarily a warm season grass, having limited cool season growth. Tops are killed by frost, but plants recover quickly with onset of warm conditions."

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Brazil, Bolivia."
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Feb 2018]	"Native Southern America Brazil: Brazil Goias, Mato Grosso, Minas Gerais"

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Naturalised in: Now used as a sown forage or hedgerow in areas extending from near the equator (southeast Asia) to the subtropics of Australia, USA and South America."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Naturalised in: Now used as a sown forage or hedgerow in areas extending from near the equator (southeast Asia) to the subtropics of Australia, USA and South America."

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"P. atratum has been assessed as a weed in some areas due to the misconceptions that it is a "water grass " and that it develops a soil seed bank. It does not grow in inundated situations and seed does not survive any length of time in the soil."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"References: Australia-W-1210, Bhutan-W- 1977." [No evidence. Weed of unspecified impacts]

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Popular as a hedgerow for erosion control but tends to compete more vigorously with adjacent crop rows than does vetiver grass (<i>Vetiveria zizanioides</i>). "
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"References: Australia-W-1210, Bhutan-W- 1977." [No evidence. Weed of unspecified impacts]

304	Environmental weed	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	[No evidence to date] "P. atratum has been assessed as a weed in some areas due to the misconceptions that it is a "water grass " and that it develops a soil seed bank. It does not grow in inundated situations and seed does not survive any length of time in the soil."

305	Congeneric weed	Y
	Source(s)	Notes
	Loope, L.L., Nagata, R.J. & Medeiros, A.C. 1992, Alien plants in Haleakala National Park Pp. 551-576 in Stone et al (eds) Alien plant invasions in native ecosystems of Hawaii. Coop. Nat. Park Resources Studies Unit, University of Hawaii, Honolulu, HI	"Hilo grass was first recorded in the Park as a component of the koa forest understory in the 1919 field notes of C.N. Forbes (A.C. Medeiros and L.L. Loope, unpub. data). It now occurs up to 4,450 ft (1360 m) in Haleakala's Kipahulu Valley, where it forms a mat, (sometimes) thick and dense, under koa forest at 2,200-3,400 ft (670 -1,040 m). Although this sprawling grass may inhibit seedling establishment of koa and other native species, these seedlings are still able to establish on decaying logs and other raised microsites. Hilo grass threatens the survival of many of the same rare native species of koa forests of Kipahulu Valley previously mentioned as threatened by strawberry guava. Despite its negative effects on native biota, no action is planned for the immediate future due to its pervasiveness."
	Anderson, S. J., Stone, C. P., & Higashino, P. K. 1992. Distribution and spread of alien plants in Kipahulu Valley, Haleakala National Park, above 2,300 ft. elevation. Pp. 300-338. in Stone et al. (eds.). Alien Plant Invasions in Native Ecosystems of Hawaii: Management and Research, Cooperative National Park Resources Studies Unit, University of Hawaii, Honolulu, HI	" <i>Paspalum conjugatum</i> (Hilo grass) spreads vegetatively by stolons or by seeds that are eaten by birds or stick to humans or other animals. This perennial grass rapidly invades wet habitats from sea level to 6,500 ft (2,000 m) and is suspected of being allelopathic (Smith 1985). It typically invades disturbed areas, forming a dense carpet even under closed-canopy forests. Disturbance is not a prerequisite for establishment, as small patches of Hilo grass can be found in intact areas. The distribution of this species is continuous from 4,400 ft (1,340 m) elevation on the Upper Plateau and 4,000 ft (1,220 m) on the Lower Plateau, downslope to where it dominates the ground cover (>50% cover) at 3,800 ft (1,160 m) on the Upper Plateau and 3,740 ft (1,140 m) on the Lower Plateau. The upper range of Hilo grass is now 4,700 ft (1,430 m) on the Upper Plateau and 4,100 ft (1,250 m) on the Lower Plateau. The thick carpets formed by Hilo grass present a barrier to establishment of seedlings of native woody plants. An enclosure constructed at Upper Dogleg by Yoshinaga in 1979 has been pig free for over 10 years but shows little hope for ground cover and shrub layer regeneration where Hilo grass carpet is established. In contrast to outside the enclosure, alien grass and sedge components other than Hilo grass are absent inside; a pure carpet of Hilo grass now exists there."
	Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	" <i>Paspalum distichum</i> " ... "Within the native range, this C4 grass is found in sands and muds near the seashore, in a line oils and swamps. It probably originates from tropical South America but the exact native range is not known. The grass forms dense mats of stolons and shallow rhizomes, outcompeting and displacing native vegetation. It invades riparian vegetation that has been subjected to disturbances (Aguiar et al., 2005)."

401	Produces spines, thorns or burrs	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence] "Perennial, rhizomatous, erect or ascending, robust, very dense fibrous root system, linear leaf blades glabrous or pubescent, spikelets elliptic-oblong, upper glume and lower lemma membranous 5-nerved"
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	[Sharp leaf edges] "Upright habit and ease of cutting make it useful in cut-and-carry systems, although the sharp leaf edges can cause discomfort to the handler. "

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Perennial, rhizomatous, erect or ascending, robust, very dense fibrous root system, linear leaf blades glabrous or pubescent, spikelets elliptic-oblong, upper glume and lower lemma membranous 5-nerved" [Poaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Used as a long-term pasture in the open and under trees. Upright habit and ease of cutting make it useful in cut-and-carry systems, although the sharp leaf edges can cause discomfort to the handler. Popular as a hedgerow for erosion control but tends to compete more vigorously with adjacent crop rows than does vetiver grass (<i>Vetiveria zizanioides</i>). Unlike vetiver grass, it can also be fed to animals. Shows early promise for hay making." ... "Well eaten by cattle, buffaloes, horses, fish, and pigs."

405	Toxic to animals	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Toxicity - No record of anti-nutritional factors."
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	

Qsn #	Question	Answer
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"In Florida, armyworms can be a problem later in the growing season , and some mole cricket damage has occurred. A leaf spot (Helminthosporium sp.) has been recorded on older leaves. Severe leaf spot has been noted in Brazil. Spittlebug has not been a problem. No record of nematode damage."
	Wathaneeyawech, S., Sirithunya, P., & Smitamana, P. (2015). Study of the host range of northern corn leaf blight disease and effect of Exserohilum turcicum toxin on sweet corn. Journal of Agricultural Technology 11, 953-963	[Potential host] "The isolate DI of Exserohilum turcicum (Pass.) Leonard & Suggs was used for studying the fungal toxin and the host range of Northern Corn Leaf Blight (NCLB) disease. This disease is an important disease of corn that causes significant economic loss in Thailand and worldwide." ... "In the grass group, the symptoms were small, single brownish to dark brown lesions. Such the symptoms were found in Atratum grass (<i>Paspalum atratum</i>), ..."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Fire is not normally an issue where <i>P. atratum</i> is grown, but on the rare occasion that stands may be burnt, plants recover rapidly." [Could contribute to fuel load in fire prone ecosystems]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Used as a long-term pasture in the open and under trees." ... "Moderate to good shade tolerance - useful in agroforestry ." ... "Can compete with aggressive species such as <i>Paspalum notatum</i> cv. Pensacola, even under heavy grazing. Due to its moderate shade tolerance, it can be grown under trees."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Successful on soils ranging from sands to clays, and can tolerate poorly drained, acid, low fertility conditions. Responds to improved nitrogen fertility."

411	Climbing or smothering growth habit	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Perennial, rhizomatous, erect or ascending, robust, very dense fibrous root system, linear leaf blades glabrous or pubescent, spikelets elliptic-oblong, upper glume and lower lemma membranous 5-nerved"

412	Forms dense thickets	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	[Unknown] "In the wild, it generally grows in low places with a high water table, which are subject to waterlogging and periodic flooding during summer. It does not grow in permanently inundated areas."

501	Aquatic	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Very tolerant of flooding but does not grow in permanent water."

502	Grass	y
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Feb 2018]	Family: Poaceae (alt.Gramineae) Subfamily: Panicoideae Tribe: Paspaleae Subtribe: Paspalinae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Feb 2018]	Family: Poaceae (alt.Gramineae) Subfamily: Panicoideae Tribe: Paspaleae Subtribe: Paspalinae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Perennial, rhizomatous, erect or ascending, robust, very dense fibrous root system, linear leaf blades glabrous or pubescent, spikelets elliptic-oblong, upper glume and lower lemma membranous 5-nerved"

601	Evidence of substantial reproductive failure in native habitat	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	[No evidence] "Native to: South America: Brazil (Goias, Mato Grosso, and Minas Gerais states), Bolivia (Santa Cruz). In the wild, it generally grows in low places with a high water table, which are subject to waterlogging and periodic flooding during summer. It does not grow in permanently inundated areas."

602	Produces viable seed	y
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"good seed production, seeds drop easily upon maturation"
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Reports of dormancy levels in fresh seed vary from low to quite high, but, even with dormant seed, germination reaches acceptable levels after 3-4 months. Germination of fresh seed can be improved from about 20% to nearly 100% by removal of the lemma and palea. Seed has a very limited "shelf life" under ambient conditions, and may remain viable for less than a year. Seed stored for several years should be stored at low temperature and low relative humidity. Seed is normally sown at 2-5 kg/ha, either broadcast or in 0.5-1 m rows. Establishes rapidly from seed, or from rooted tillers."

603	Hybridizes naturally	n
	Source(s)	Notes
	Quarín, C. L., Valls, J. F. M., & Urbani, M. H. (1997). Cytological and reproductive behaviour of <i>Paspalum atratum</i> , a promising forage grass for the tropics. <i>Tropical Grasslands</i> , 31, 114-116	"Because this accession is apomictic, it can be grown in proximity to other accessions for seed production without risk of contamination through pollen." [No evidence]

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Quarín, C. L., Valls, J. F. M., & Urbani, M. H. (1997). Cytological and reproductive behaviour of <i>Paspalum atratum</i> , a promising forage grass for the tropics. <i>Tropical Grasslands</i> , 31, 114-116	"Embryological and experimental data demonstrate that this accession is apomictic with aposporous embryo sac formation followed by parthenogenesis. Thus, plant selection or crosses will be fruitless in breeding programs unless a sexual or partially sexual form of the species (or related compatible species) can be identified. Because this accession is apomictic, it can be grown in proximity to other accessions for seed production without risk of contamination through pollen."
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	"Genetics/breeding - Tetraploid (2n = 4x = 40), apomictic ."

605	Requires specialist pollinators	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Zomlefer, W.B. 1994. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	[Family Description] "The reduced flowers are anemophilous, although pollen-gathering insects have been reported for some grass species (Soderstrom and Calderon 1971; Terrell and Batra 1984)."
606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"No vegetative spread, but will spread by seed if allowed to mature late in the season."
607	Minimum generative time (years)	1
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Flowering in the first year may be minimal, but thereafter, commences early April (southern hemisphere) or October (northern hemisphere) in the subtropics, and earlier in lower latitudes. Within 5-10° of the equator, flowering may cease altogether."
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	"Seed tends to be shed as soon as it matures (shatters)." [Unknown. Other Paspalum species are dispersed externally by adhering to footwear, machinery, vehicles etc.]
	PlantUse contributors. 2018. Paspalum conjugatum (PROSEA). PlantUse English. http://uses.plantnet-project.org/en/Paspalum_conjugatum_(PROSEA) . [Accessed 9 Feb 2018]	[Possibly. Related taxa can be dispersed externally] "Wet fruits may become very irritating as they easily stick to one's legs and clothing."
702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	"Naturalised in: Now used as a sown forage or hedgerow in areas extending from near the equator (southeast Asia) to the subtropics of Australia, USA and South America."
703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	"Shows early promise for hay making." [No evidence but has potential to be dispersed as a seed contaminant with other pasture grasses or produce]

Qsn #	Question	Answer
704	Propagules adapted to wind dispersal	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	[Wind & gravity probably aid in movement of seeds] "Spikelets about 3 mm long and 2 mm wide. 250,000-450,000 seeds/kg." ... "Seed tends to be shed as soon as it matures (shatters)."
705	Propagules water dispersed	y
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"suitable for seasonally waterlogged or wet soils, savannahs, riverbanks"
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	[Distribution in riparian and flooded habitats suggests seeds are moved by water] "Very tolerant of flooding but does not grow in permanent water." ... "Seed tends to be shed as soon as it matures (shatters)." ... "No vegetative spread, but will spread by seed if allowed to mature late in the season."
706	Propagules bird dispersed	n
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	No evidence of consumption or dispersal by birds
707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	PlantUse contributors. 2018. <i>Paspalum conjugatum</i> (PROSEA). PlantUse English. http://uses.plantnet-project.org/en/Paspalum_conjugatum_(PROSEA) . [Accessed 9 Feb 2018]	[Possibly yes. Related taxon dispersed externally] "Wet fruits may become very irritating as they easily stick to one's legs and clothing."
708	Propagules survive passage through the gut	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	"Well eaten by cattle, buffaloes, horses, fish, and pigs." [Unknown, but possibly yes, as are other grass seeds. Testing for viability of seeds needed]
801	Prolific seed production (>1000/m ²)	
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 9 Feb 2018]	"Spikelets about 3 mm long and 2 mm wide. 250,000-450,000 seeds/kg." [Possibly. Unknown in natural settings]

Qsn #	Question	Answer
802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Reports of dormancy levels in fresh seed vary from low to quite high, but, even with dormant seed, germination reaches acceptable levels after 3-4 months. Germination of fresh seed can be improved from about 20% to nearly 100% by removal of the lemma and palea. Seed has a very limited "shelf life" under ambient conditions, and may remain viable for less than a year."

803	Well controlled by herbicides	y
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Seedlings are damaged by 2,4-D, but not by dicamba at 0.5 kg/ha AI. Pre-emergence applications of clomazone, fluometron, diuron, imazetnapyr, metribuzin, trifluralin), and norflurazon prevent establishment from seed. Mature stands can be largely controlled using glyphosate at 3-4 kg/ha AI. If spray water contains high concentrations of antagonistic calcium and magnesium salts (see herbicide label), the addition of ammonium sulphate at 10 kg/ha, with glyphosate at 2 kg/ha AI, may improve kill."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Cook, B.G. et al. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. http://www.tropicalforages.info/index.htm . [Accessed 8 Feb 2018]	"Flowering is disrupted if the stand is cut or grazed low within 2 months of commencement of flowering, destroying the elongating apical meristem" ... "Tolerant of low grazing and regular cutting, although best results obtained from more lenient management. Very easy to cut with scythe or mower." ... "Fire is not normally an issue where <i>P. atratum</i> is grown, but on the rare occasion that stands may be burnt, plants recover rapidly."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives in tropical climates
- Naturalized in Australia & Southeast Asia
- Other *Paspalum* species are invasive
- Sharp edges
- Shade tolerant
- Tolerates many soil types
- Reproduces by seeds
- Apomictic
- Reaches maturity in <1 year
- Seeds dispersed by water, intentionally by people & possibly by wind & other means
- Tolerates grazing, cutting & fire

Low Risk Traits

- Palatable to grazing animals
- Non-toxic
- Not reported to spread vegetatively
- Herbicides provide effective control