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<b>Taxon:</b> <i>Tripsacum dactyloides</i> (L.) L.	<b>Family:</b> Poaceae
<b>Common Name(s):</b> eastern gama grass gama grass	<b>Synonym(s):</b> <i>Andropogon digitatus</i> Hochst. ex <i>Coix angulata</i> Mill. <i>Coix dactyloides</i> L. <i>Dactyloides angulatum</i> (Mill.) Kuntze <i>Dactyloides dactyloides</i> (L.) Kuntze <i>Ischaemum glabrum</i> Walter <i>Tripsacum monostachyon</i> Willd.

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Assessor Approved	<b>End Date:</b> 13 Jun 2016
<b>WRA Score:</b> 9.0	<b>Designation:</b> H(HPWRA)	<b>Rating:</b> High Risk

**Keywords:** Perennial, Clump Grass, Naturalized, Fodder, Rhizomatous

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	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	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		
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

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Qsn #	Question	Answer Option	Answer
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems	y=1, n=0	y
409	Is a shade tolerant plant at some stage of its life cycle		
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	y=1, n=0	y
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		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
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	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed		
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
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., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	" An extremely variable perennial clump grass, with short, fibrous, knotty rhizomes and deep hollow roots." [Assessment of wild type. Several cultivars exist]

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2016. 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, 2016. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 9 Jun 2016]	Native: "Northern America North-Central U.S.A.: United States - Illinois, - Iowa, - Kansas, - Missouri, - Nebraska, - Oklahoma, - Wisconsin Northeastern U.S.A.: United States - Connecticut, - Indiana, - Massachusetts, - New Jersey, - New York, - Ohio, - Pennsylvania, - Rhode Island, - West Virginia Northern Mexico: Mexico - Coahuila, - Durango, - San Luis Potosi, - Tamaulipas South-Central U.S.A.: United States - Texas Southeastern U.S.A.: United States - Alabama, - Arkansas, - Delaware, - Florida, - Georgia, - Kentucky, - Louisiana, - Maryland, - Mississippi, - North Carolina, - South Carolina, - Tennessee, - Virginia Southern Mexico: Mexico - Aguascalientes, - Chiapas, - Guerrero, - Jalisco, - Mexico, - Michoacan, - Morelos, - Nayarit, - Oaxaca, - Puebla, - Federal District Southern America Caribbean: Bahamas; Cuba; Hispaniola Mesoamerica: Belize; Costa Rica; Guatemala; Honduras; Panama Northern South America: French Guiana; Guyana; Suriname; Venezuela Western South America: Colombia"

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Qsn #	Question	Answer
202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 9 Jun 2016]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"The great diversity within this species is distributed from about 42°N to 24°S, and from near sea level to 2,100 m asl, representing an unusually wide range in average annual temperatures for a single species, from below 12° to about 24°C. Tops are burnt by heavy frost, recommencing growth in early spring. Plants survive temperatures as low as -30°C, but require at least 140 frost free days/year for longer-term persistence."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Distribution Native to: North America: USA, Mexico. Central America: Belize, Costa Rica, Guatemala, Honduras, Mexico, Panama. Caribbean: Bahamas, Cuba, Hispaniola. South America: Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Suriname, Venezuela."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	Cited as present in China & Australia
	Jung, M. J., Chen, C. W., Chung, S. W., & Kuoh, C. S. (2009). Supplements to the grasses (Poaceae) in Taiwan (I). <i>Taiwania</i> , 54(1), 69-75	Taiwan

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Qsn #	Question	Answer
301	<b>Naturalized beyond native range</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Jung, M. J., Chen, C. W., Chung, S. W., & Kuoh, C. S. (2009). Supplements to the grasses (Poaceae) in Taiwan (I). <i>Taiwania</i> , 54(1), 69-75	" <i>Cynodon nlemfuensis</i> Vanderyst has recently become naturalized in low elevations of Taiwan, and <i>Tripsacum dactyloides</i> (L.) L. established its population in low elevations, central Taiwan. The occurrence of <i>Eragrostis cumingii</i> Steud. in lowlands and low elevations in Taiwan was confirmed. We describe these three grasses new to the flora of Taiwan." ... "In recent, <i>T. dactyloides</i> (L.) L. has become naturalized in low elevations of central Taiwan"

302	<b>Garden/amenity/disturbance weed</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. <i>Tropical Forages: an interactive selection tool.</i> , [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Ability to spread - No information available. Weed potential - No information available."
	Virginia Tech Weed Identification Guide. 2016. Eastern Gamagrass or Gamagrass: <i>Tripsacum dactyloides</i> . <a href="http://oak.ppws.vt.edu/~flessner/weedguide/gama.htm">http://oak.ppws.vt.edu/~flessner/weedguide/gama.htm</a> . [Accessed 9 Jun 2016]	[Labeled of weed, but impacts unspecified] "Eastern Gamagrass has a conspicuous spike seedhead that is 'jointed' and is primarily a weed of pastures, hay fields, abandoned fields, roadsides, and along the edges of woods. This grass is found from Massachusetts south to Florida."
	Rutgers New Jersey Agricultural Experiment Station. 2016. New Jersey Weed Gallery. <a href="https://njaes.rutgers.edu/weeds/">https://njaes.rutgers.edu/weeds/</a> . [Accessed 9 Jun 2016]	[Native or considered as a weed of New Jersey] " <i>Tripsacum dactyloides</i> ... This grass grows to a height of 4 to 6 feet and spreads by means of rhizomes. The leaves are long and up to 4 inches wide. The population is increasing in New Jersey. Found mostly in wet areas such as ditches. "

303	<b>Agricultural/forestry/horticultural weed</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. 2012. <i>A Global Compendium of Weeds</i> . 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	<b>Environmental weed</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. 2012. <i>A Global Compendium of Weeds</i> . 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

305	<b>Congeneric weed</b>	
	<b>Source(s)</b>	<b>Notes</b>

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Qsn #	Question	Answer
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Possibly. Included in weed references, but a literature search of detrimental impacts failed to turn up conclusive evidence] "Tripsacum laxum Nash Poaceae Cultivated, Pasture Arid - Refs: 9 1207-A, 1059-N, 933-A, 930-A, 929-A, 927-A, 261-CW, 90-W, 87-W"
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	[ <i>Tripsacum andersonii</i> ] "Weed potential - Local problem in unmanaged stands due to high labour requirement to dig out rhizomes."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	[No evidence] "An extremely variable perennial clump grass, with short, fibrous, knotty rhizomes and deep hollow roots. Culms 2-3 (-4 m) tall, and 3-5 cm thick at base, branching, prop-rooting from lower nodes; stems purplish, glabrous. Leaf sheath glabrous, often purplish; leaf-blade lanceolate-acuminate, to 1.5 m long and 9-35 mm wide, mostly glabrous, sometimes hairy at the base of the upper blade surface; margin scabrous; ligule a fringe of hairs, 1-1.5 mm long, prominent midrib."

402	Allelopathic	n
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	[Unknown] "Companion species - <i>T. dactyloides</i> is usually grown as a pure stand, and inclusion of other species is difficult. However, in view of its soil and drainage preferences, it may grow with <i>Panicum coloratum</i> ."

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 , caespitose , densely clumped, glabrous, stout , solid, robust, tough, persistent , culms thick at base, rhizomatous with short and woody rhizomes," [Poaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"hay plant and good fodder, seldom grazed"
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Used for forage (well-managed pasture, green-chop, cut and carry, hay or silage), soil conservation , and as an ornamental." ... "It is suited to managed grazing and cutting for green chop, cut and carry, hay and silage. It is intolerant of continuous grazing, and is best rotationally grazed with a stubble height of 15-20 cm (achievable with 4-6 days grazing and 4-6 weeks rest). More regular or closer grazing leads to reduction of stand. Grazing can commence when the grass reaches 45-60 cm tall. A longer rest of about 3 months every 2-3 years facilitates seed set and reinvigorates the stand. To obtain the best compromise between quality and quantity, hay should be cut at 15-20 cm at early booting, roughly on a 45-day cycle (e.g. early June, mid-July, and early September in the northern hemisphere)."

405	Toxic to animals	n
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Palatability/acceptability - It is extremely palatable when young. Toxicity - No suspicion of toxicity."

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Little affected by pests and diseases, although a host plant for bunchgrass ( <i>Problema byssus</i> ), clouded ( <i>Lerema accius</i> ) and three-spotted ( <i>Cybaenes tripunctatus</i> ) skippers (Lepidoptera; Hesperiiinae); the seeds are eaten by birds. Seed and forage yields are also reduced by the maize billbug ( <i>Sphenophorus maidis</i> ), the southern cornstalk borer ( <i>Diatraea crambidoides</i> ), and the southwestern corn borer ( <i>Diatraea grandiosella</i> ). Resistant to the African parasitic weed, <i>Striga hermonthica</i> ."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Pollen Library. 2016. Eastern Mock Grama ( <i>Tripsacum dactyloides</i> ). <a href="http://www.pollenlibrary.com/Specie/Tripsacum+dactyloides/">http://www.pollenlibrary.com/Specie/Tripsacum+dactyloides/</a> . [Accessed 9 Jun 2016]	"Allergenicity: Eastern Mock Grama ( <i>Tripsacum dactyloides</i> ) is a moderate allergen."

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Qsn #	Question	Answer
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Palatability/acceptability - It is extremely palatable when young. Toxicity - No suspicion of toxicity."

408	Creates a fire hazard in natural ecosystems	y
	Source(s)	Notes
	Stafford, K. 2011. Firewise Plant List - Texas. <a href="http://txmg.wpengine.netdna-cdn.com/ellis/files/2012/03/Texas-Plant-Flammability-List.pdf">http://txmg.wpengine.netdna-cdn.com/ellis/files/2012/03/Texas-Plant-Flammability-List.pdf</a> . [Accessed 9 Jun 2016]	"Tripsacum dactyloides - Flamibility - Firewise = High" [
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	[Tolerates drought & fire. Could increase fire risk in seasonally dry areas] "By virtue of a dense root system extending to 4.5 m deep, it has at least moderate drought tolerance, but produces little growth in dry weather." ... "Stands can be burnt annually to remove low quality frosted leaf and stem , to control woody weeds, and to reduce foliar diseases, and is best done in early spring when new growth is 2-3 cm long."

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	USDA NRCS. 2007. Eastern Gamagrass. A Plant for Forage, Conservation, and Bioenergy. <a href="http://plants.usda.gov/8083.pdf">http://plants.usda.gov/8083.pdf</a> . [Accessed 9 Jun 2016]	"Gamagrass is not particularly shade tolerant."
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Light - Best in full sun, but tolerates light shade."



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Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	<b>Source(s)</b>	<b>Notes</b>
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Soil requirements: Prefers moist, moderately well drained, fertile soils, with textures ranging from sand to clay and pH from 5.5-7.5. It is also adapted to poorly drained soils, but, unlike many species from such situations, has low salt tolerance."
	USDA NRCS. 2007. Eastern Gamagrass. A Plant for Forage, Conservation, and Bioenergy. <a href="http://plants.usda.gov/8083.pdf">http://plants.usda.gov/8083.pdf</a> . [Accessed 9 Jun 2016]	[Some cultivars are adapted to many soil types] "San Marcos is adapted to a wide range of soil types, but will perform best on sandy loams, clay loams, and clays. It is well adapted to low, moist subirrigated sites." ... "Medina is adapted to many soil types, but deep sandy soils are not suitable."

411	Climbing or smothering growth habit	n
	<b>Source(s)</b>	<b>Notes</b>
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Perennial , caespitose , densely clumped, glabrous, stout , solid, robust, tough, persistent , culms thick at base, rhizomatous with short and woody rhizomes,"

412	Forms dense thickets	y
	<b>Source(s)</b>	<b>Notes</b>
	Schliesing, T. G. & Dahl, B. (1983). Ecotypic Variation in <i>Tripsacum dactyloides</i> Evaluated in Texas. <i>Journal of Range Management</i> , 36(5), 665-668	[Formed natural pure stands in the past] "According to Polk and Adcock (1964), early settlers in Texas found this grass covering thousands of acres in almost pure stands. They believe it was important in one-third of Texas and it was found scattered throughout Texas."
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). <i>Botanical Gazette</i> , 146(3), 353-364	[Forms dense stands] "Enhanced temperatures in spring associated with bare ground surfaces on disturbed sites encourage germination, compared to cooler microclimatic conditions in dense stands of the grass with thick litter layers. The occurrence of the plant along stream banks and its recent establishment along road rights-of-way (J. DE WET, Univ. of Illinois, personal communication) support this contention. In contrast, the plant in dense stands relies on vegetative propagation for the maintenance of established populations."
	Schliesing, T. G. (1974). otypic variation in <i>Tripsacum dactyloides</i> , in Texas. MSc Thesis. Texas Tech University, Lubbock, TX	[Previously found in pure stands] "According to Polk and Adcock (1964), early settlers in Texas found this grass, in almost pure stands, covering thousands of acres. They theorize that at one time. Eastern gamagrass was "an important plant in one-third of Texas and found scattered throughout most of Texas.""

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Qsn #	Question	Answer
501	<b>Aquatic</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Terrestrial] "it does not tolerate standing water" ... "grows on moist fertile soils, shores. savannah. well-drained sites, salt marsh borders, near running fresh water, drained swamps,"

502	<b>Grass</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 9 Jun 2016]	Family: Poaceae (alt.Gramineae) Subfamily: Panicoideae Tribe: Andropogoneae

503	<b>Nitrogen fixing woody plant</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 9 Jun 2016]	Family: Poaceae (alt.Gramineae) Subfamily: Panicoideae Tribe: Andropogoneae

504	<b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"An extremely variable perennial clump grass, with short, fibrous, knotty rhizomes and deep hollow roots."

601	<b>Evidence of substantial reproductive failure in native habitat</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>

L.

Qsn #	Question	Answer
	<p>USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a>. [Accessed 9 Jun 2016]</p>	<p>[No evidence. Widespread distribution]                      "Native:                      Northern America                          North-Central U.S.A.: United States - Illinois, - Iowa, - Kansas, - Missouri, - Nebraska, - Oklahoma, - Wisconsin                          Northeastern U.S.A.: United States - Connecticut, - Indiana, - Massachusetts, - New Jersey, - New York, - Ohio, - Pennsylvania, - Rhode Island, - West Virginia                          Northern Mexico: Mexico - Coahuila, - Durango, - San Luis Potosi, - Tamaulipas                          South-Central U.S.A.: United States - Texas                          Southeastern U.S.A.: United States - Alabama, - Arkansas, - Delaware, - Florida, - Georgia, - Kentucky, - Louisiana, - Maryland, - Mississippi, - North Carolina, - South Carolina, - Tennessee, - Virginia                          Southern Mexico: Mexico - Aguascalientes, - Chiapas, - Guerrero, - Jalisco, - Mexico, - Michoacan, - Morelos, - Nayarit, - Oaxaca, - Puebla, - Federal District                      Southern America                          Caribbean: Bahamas; Cuba; Hispaniola                          Mesoamerica: Belize; Costa Rica; Guatemala; Honduras; Panama                          Northern South America: French Guiana; Guyana; Suriname; Venezuela                          Western South America: Colombia"</p>

602	Produces viable seed	y
	Source(s)	Notes
	<p>Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., &amp; Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&amp;F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a>. [Accessed 9 Jun 2016]</p>	<p>"Fresh seed has a high level of dormancy that can be broken by pre-chilling the seed at 5-10°C for 8-10 weeks, a process that happens naturally in colder areas with freezing and thawing. Untreated seed can be sown mid- to late winter once soil temperature falls below 10°C, germinating after winter when soil temperatures reach 16-18°C. Pre-chilled seed is used for irrigated sowings in mid- to late spring. Seed should be placed 2-3 cm deep into a prepared seedbed, either broadcast, covered and rolled, or planted in 50-120 cm rows, using a sowing rate of 5-10 kg/ha PLS. Since plant crowns can ultimately exceed 1 m in diameter, a final population of about 1 plant/m<sup>2</sup> is considered adequate."</p>

603	Hybridizes naturally	
	Source(s)	Notes
	<p>Talbert, L. E., Doebley, J. F., Larson, S., &amp; Chandler, V. L. (1990). <i>Tripsacum andersonii</i> is a natural hybrid involving <i>Zea</i> and <i>Tripsacum</i>: molecular evidence. <i>American Journal of Botany</i>, 77(6): 722-726</p>	<p>"Cytogenetic evidence suggests that <i>Tripsacum andersonii</i> may be a natural hybrid between <i>Zea</i> and <i>Tripsacum</i>." ... "Examination of nuclear ribosomal genes of <i>T. andersonii</i> also supports the hybridization hypothesis and identifies the <i>Zea</i> parent as <i>Zea luxurians</i>. The <i>Tripsacum</i> parent could not be conclusively identified, but the ribosomal gene data suggest that the species of <i>Tripsacum</i> section <i>Fasiculata</i> most closely resemble <i>T. andersonii</i>."</p>

L.

Qsn #	Question	Answer
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Like other <i>Tripsacum</i> species, <i>T. dactyloides</i> can hybridise with domesticated corn, although offspring of direct crosses are generally sterile. May have a role in maize improvement programs."
	Jatimliansky, J. R., Garcia, M. D., & Molina, M. C. (2004). Response to chilling of <i>Zea mays</i> , <i>Tripsacum dactyloides</i> and their hybrid. <i>Biologia Plantarum</i> , 48(4), 561-567	[Artificial hybridization possible] " <i>Z. mays</i> × <i>T. dactyloides</i> hybrid plants were obtained by hand pollination of <i>Z. mays</i> inbred N107B (2n=40) with <i>T. dactyloides</i> and subsequent embryo rescue. Ears were harvested 12 d after pollination."

604	Self-compatible or apomictic	
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	[Polyploids are facultative apomicts] "Chromosome numbers vary greatly from diploid (2n = 2x = 36), to triploid (2n = 3x = 54), tetraploid (2n = 4x = 72), pentaploid (2n = 5x = 90), and hexaploid (2n = 6x = 108). Diploids reproduce sexually, whereas the polyploids are facultative apomicts. Crossing between the sexual diploids and the polyploids can occur. Gynomonoecious types may help in breeding programs to increase seed yield."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Zomlefer, W.B. 1994. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	Poaceae [anemophilous. Wind-pollinated]

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). <i>Botanical Gazette</i> , 146(3), 353-364	"Clonal spreading of <i>Tripsacum</i> populations occurs via apomictically developed seeds or rhizomatous growth of ramets (FARQUHARSON 1955; NEWELL and DE WET 1974)."

607	Minimum generative time (years)	2
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	[2-3 years] "Seed crops are normally sown in rows 90-120 cm apart. Tillers remain vegetative in the first season and become reproductive in the second or third season of growth. "

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	

L.

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Virginia Tech Weed Identification Guide. 2016. Eastern Gamagrass or Gamagrass: <i>Tripsacum dactyloides</i> . <a href="http://oak.ppws.vt.edu/~flessner/weedguide/gama.htm">http://oak.ppws.vt.edu/~flessner/weedguide/gama.htm</a> . [Accessed 9 Jun 2016]	"primarily a weed of pastures, hay fields, abandoned fields, roadsides, and along the edges of woods." [Along heavily trafficked corridors. May sometimes be dispersed accidentally, although seeds lack means of external attachment]

702	Propagules dispersed intentionally by people	y
	<b>Source(s)</b>	<b>Notes</b>
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Used for forage (well-managed pasture, green-chop, cut and carry, hay or silage), soil conservation , and as an ornamental."

703	Propagules likely to disperse as a produce contaminant	n
	<b>Source(s)</b>	<b>Notes</b>
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). <i>Botanical Gazette</i> , 146(3), 353-364	"Dispersal by wind is unlikely because of the large size of the fruits." [Unlikely contaminant given size of fruits]
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 13 Jun 2016]	"Used for forage (well-managed pasture, green-chop, cut and carry, hay or silage), soil conservation , and as an ornamental." [No evidence found, although theoretically possible if cultivated with other silage crops]

704	Propagules adapted to wind dispersal	n
	<b>Source(s)</b>	<b>Notes</b>
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). <i>Botanical Gazette</i> , 146(3), 353-364	"Dispersal by wind is unlikely because of the large size of the fruits."

L.

Qsn #	Question	Answer
705	<b>Propagules water dispersed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Rutgers New Jersey Agricultural Experiment Station. 2016. New Jersey Weed Gallery. <a href="https://njaes.rutgers.edu/weeds/">https://njaes.rutgers.edu/weeds/</a> . [Accessed 9 Jun 2016]	"The population is increasing in New Jersey. Found mostly in wet areas such as ditches." [Suggests some dispersal by water]
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). <i>Botanical Gazette</i> , 146(3), 353-364	" <i>Tripsacum</i> frequently occupies stream banks, and dissemination of rhizomes and seeds occurs via water (GALINAT and CRAIGHEAD 1964; RANDOLPH 1970)." ... "The cupule enclosing the caryopsis apparently serves several functions. As suggested by GALINAT and CRAIGHEAD (1964), it may encourage water dispersal of seeds. It also limits conditions under which germination can occur."

706	<b>Propagules bird dispersed</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Galinat, W. C., & Craighead, F. C. (1964). Some observations on the dissemination of <i>Tripsacum</i> . <i>Rhodora</i> , 66(768), 371-374	"The possibility that birds such as ducks may be involved in the dispersal of <i>Tripsacum</i> has also been considered. Experiments are contemplated for testing this by feeding <i>Tripsacum</i> fruit cases to chickens or domestic ducks and then spreading the recovered dung out on the ground where any viable fruit cases may germinate."
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. <i>Tropical Forages: an interactive selection tool</i> , [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"the seeds are eaten by birds" [Viability of ingested seeds unknown. Presumably most are destroyed]
	Clark, R. B., Alberts, E. E., Zobel, R. W., Sinclair, T. R., Miller M. S., Kemper, W. D., & Foy, C. D. (1998). Eastern gamagrass ( <i>Tripsacum dactyloides</i> ) root penetration into and chemical properties of claypan soils. <i>Plant and Soil</i> , 200(1), 33-45	[Possibly] "Establishment of eastern gamagrass at many sites has not often been deliberate, but has been established from distributed animal and bird waste and water movement over land."

707	<b>Propagules dispersed by other animals (externally)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). <i>Botanical Gazette</i> , 146(3), 353-364	"Seed predation, almost entirely by small rodents, was estimated to be ca. 95% of the annual seed crop." [Some seeds may be carried by rodents & escape predation, but majority of seeds are destroyed]

Qsn #	Question	Answer
708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). Botanical Gazette, 146(3), 353-364	"Even though seeds survived passage through the digestive tract of a cow, germination was not improved. Passage of seeds occurred for ca. 144 h following feeding. It was assumed that collection of dung without caryopses indicated that all of the fruits had been passed. If buffalo fed on <i>Tripsacum</i> fruits and also retained them for 2-6 days, it might be expected that they were an occasional dispersal agent for <i>Tripsacum</i> seed. The wide, but extremely scattered, distribution of the grass species in the eastern United States (NEWELL and DE WET 1974) may have been partly due to seed dispersal by buffalo."

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). Botanical Gazette, 146(3), 353-364	"Annual seed production was estimated to be ca. 412/m2"
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Limitations Difficult to establish Susceptible to continuous grazing Low seed production"

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Finneseth, C. H. (2010). Evaluation and enhancement of seed lot quality in eastern gamagrass [ <i>Tripsacum dactyloides</i> (L.) L.]. PhD Dissertation. University of Kentucky, Lexington, KY	"Persistence studies suggest eastern gamagrass seed is short lived in the seed bank and no secondary dormancy is induced (Gibson et al., 2005)."
	Anderson, R. (1985). Aspects of the Germination Ecology and Biomass Production of Eastern Gamagrass ( <i>Tripsacum dactyloides</i> L.). Botanical Gazette, 146(3), 353-364	"Seeds not germinating during the first growing season and escaping predation may germinate after a second exposure to cold stratification during winter. Seeds maintained on moist filter paper at room temperature in the laboratory for periods in excess of 1 yr germinated."

803	Well controlled by herbicides	
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Tolerant of many herbicides used in corn production. Tolerant of atrazine, metolachlor, alachlor, cyanazine, nicosulfuron, rimsulfuron, 2,4-D, and dicamba, but susceptible to imazapic."

L.

Qsn #	Question	Answer
	WRA Specialist. 2016. Personal Communication	Unknown. Certain broad-spectrum systemic herbicides such as glyphosate have not been evaluated, but would probably provide effective control

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M., & Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool., [CD-ROM], SIRO, DPI&F(Qld), CIAT and ILRI. <a href="http://www.tropicalforages.info/index.htm">http://www.tropicalforages.info/index.htm</a> . [Accessed 9 Jun 2016]	"Fire - Stands can be burnt annually to remove low quality frosted leaf and stem , to control woody weeds, and to reduce foliar diseases, and is best done in early spring when new growth is 2-3 cm long."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown



**Summary of Risk Traits:**

## High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Grows in tropical climates
- Naturalized in Taiwan
- Described as a weed in some locations
- Pollen is a moderate allergen to humans
- May increase fire risk in fire prone areas
- Tolerates many soil types
- Forms pure stands in native range
- Reproduces by seeds & rhizomes
- Certain forms are apomictic
- Reaches maturity in 2-3 growing seasons
- Seeds dispersed by water, internally by grazing animals, & intentionally by people
- Tolerant of grazing, mowing & fire

## Low Risk Traits

- Unarmed (no spines, thorns or burrs)
- Provides fodder & hay for grazing animals
- Ornamental