

Taxon: <i>Moringa borziana</i> Mattei	Family: Moringaceae
Common Name(s):	Synonym(s): <i>Hyperanthera borziana</i> (Mattei)

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 10 Mar 2021
WRA Score: -2.0	Designation: L	Rating: Low Risk

Keywords: Tropical Shrub/Tree, Unarmed, Tuberos, Bee-Pollinated, Wind-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	?
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	n
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
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		
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		
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)		

Qsn #	Question	Answer Option	Answer
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	n
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	n
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
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	y
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m ²)		
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
	Verdcourt, B. (1985). A synopsis of the Moringaceae. Kew Bulletin 40(1): 1-23	[No evidence of domestication] "The pair <i>M. rivae</i> and <i>M. borziana</i> are the only 'difficult' species in the genus and together with <i>M. arborea</i> form the part of the genus still in a state of active evolution. Habit and indumentum will usually distinguish the first pair but exceptions occur and there is no data as to how early in the life cycle flowering starts nor whether <i>M. borziana</i> , which is predominantly tuberous sending up annual shoots, becomes larger under certain conditions."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2021). 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
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	" <i>Moringa borziana</i> is relatively a woody or small shrub that can grow up to 5 m high. It is known to be native to Kenya and Somalia, in particular from the southern Kenya to the region of Kisi1nyu in Southern S01nalia within JOO miles from the sea coast (Olson, 1999)."

202	Quality of climate match data	High
	Source(s)	Notes
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	

Qsn #	Question	Answer
203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Verdcourt, B. (1985). A synopsis of the Moringaceae. Kew Bulletin 40(1): 1-23	[Native to a relatively narrow latitudinal range in Somalia and Kenya, at elevations below 1000 m] "In dense or open bushland usually Commiphora-Acacia- Terminalia orbicularis but also in Platycelyphium, Dobera, Cordia, Grewia, Delonix and Terminalia, also Calyptrorhiza somalensis~C. taitensis, Cordia, Boscia, Sericocomopsis association with Aristida, Chloris, Cenchrus, Tetrapogon grassland on fawn to deep red-orange sands and sandy loams; 30-570m."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	"Moringa borziana is relatively a woody or small shrub that can grow up to 5 m high. It is known to be native to Kenya and Somalia, in particular from the southern Kenya to the region of Kisi1nyu in Southern Somalia within 100 miles from the sea coast (Olson, 1999)."

205	Does the species have a history of repeated introductions outside its natural range?	?
	Source(s)	Notes
	Olson, M.E. (1999). Moringa Home Page. http://www.mobot.org/gradstudents/olson/moringahome.html . [Accessed 9 Mar 2021]	"In cultivation here in the US, when given the chance, M. borziana will make a shoot 3 meters high in the course of 2 months."
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	"It is known to be native to Kenya and Somalia, in particular from the southern Kenya to the region of Kismayu in Southern Somalia within 100 miles from the sea coast" [No evidence of widespread cultivation outside native range]
	WRA Specialist. (2021). Personal Communication	Although there is some evidence of cultivation outside the native range, the extent is unknown

301	Naturalized beyond native range	n
	Source(s)	Notes
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

Qsn #	Question	Answer
302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	
	Source(s)	Notes
	Navie, S. & Csurhes, S. (2010). Weed Risk Assessment. Horseradish tree. <i>Moringa oleifera</i> . The State of Queensland, Department of Employment, Economic Development and Innovation	[Regarded as a minor weed] "This species is regarded as potentially invasive or moderately invasive in tropical regions of the world. It has escaped from gardens in northern Australia, and is currently naturalised in north Queensland and northern Western Australia. Currently, it is considered a minor weed in northern Australia, but its status may change over time. <i>Moringa oleifera</i> appears to spread relatively slowly, eventually forming dense thickets around parent trees. Like other tree species with similar ecological characteristics, it may pose a long term threat to certain natural ecosystems in the wet/dry tropics of northern Australia. The large scale commercial cultivation of this species might accelerate the rate of naturalization and population development in northern Australia."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Verdcourt, B. (1985). A synopsis of the Moringaceae. Kew Bulletin 40(1): 1-23	[No evidence] "Subshrub or woody herb, ? rarely a small tree, usually with single stem 1-1.2 m tall arising from a large tuberous root; stems and leaves glabrous even when very young or with microscopic indumentum; sepals green flushed red; petals yellowish red; ovary glabrous; seeds 2.5-3 cm long overall including the wings, with a deep sinus at one end"

402	Allelopathic	
	Source(s)	Notes

Qsn #	Question	Answer
	Hossain, M. M., Miah, G., Ahamed, T., & Sarmin, N. S. (2012). Allelopathic effect of <i>Moringa oleifera</i> on the germination of <i>Vigna radiata</i> . <i>Intl. J. Agri. Crop Sci</i> , 4(3): 114-121	[Unknown. Allelopathic properties documented in <i>M. oleifera</i>] "Abstract: The objectives of the study were to examine the allelopathic effect of different concentrations of leaf, root, bark, fruit kernel and seed aqueous extracts of <i>Moringa oleifera</i> on the germination of <i>Vigna radiata</i> ... The inhibitory effect of leaf, fruit kernel and seed aqueous extracts were almost similar, while those were relatively less than bark and root extracts. The effects of light and dark conditions on the rate of germination were not distinct. Therefore, the study revealed that allelochemicals released from different plant parts of <i>M. oleifera</i> impeded the rate of germination in laboratory condition."

403	Parasitic	n
	Source(s)	Notes
	Habtemariam, S. (2017). <i>The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications</i> . Elsevier, Amsterdam	" <i>Moringa borziana</i> is relatively a woody or small shrub that can grow up to 5 m high." [No evidence. Moringaceae]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Munyanziza, E. & Yongabi, K.A., (2007). <i>Moringa peregrina</i> (Forssk.) Fiori. [Internet] Record from PROTA4U. van der Vossen, H.A.M. & Mkamilo, G.S. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. http://www.prota4u.org/search.asp . [Accessed 9 Mar 2021]	[Other species are palatable] "In southern Sudan and Yemen <i>Moringa peregrina</i> is a bee plant and its leaves are used as fodder."
	Van Wyk, B. & Van Wyk, P. 1997. <i>Field Guide to Trees of Southern Africa</i> . Struik Publishers, Cape Town, South Africa	[Other species are palatable] "The leaves and fruit are browsed by elephant, giraffe and springbok. Bark, wood, and root eaten by small stock and porcupine. Root edible, but sour-tasting."
	WRA Specialist. (2021). Personal Communication	Palatability unknown, but other species are browsed or grazed by animals

405	Toxic to animals	n
	Source(s)	Notes
	Quattrocchi, U. (2012). <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	No evidence
	Wagstaff, D.J. (2008). <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	Notes

Qsn #	Question	Answer
	Olson, M.E. (2014). Leafcutter ants! The International Moringa Germplasm Collection. http://moringaceae.org/imgc-moringa-blog/archives/12-2014 . [Accessed 9 Mar 2021]	"Moringas planted out in the ground tend to have few pests, at least here far from their native range. Here at the collection the only real problem are leafcutter ants. ... Once the trees get bigger, a few leafcutters won't make much of a difference. " ... "Some species seem more susceptible than others. I haven't had mite trouble with <i>M. peregrina</i> , but <i>M. concanensis</i> and <i>M. oleifera</i> are susceptible."

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
	Wagstaff, D.J. (2008). International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	"The locality of <i>M. borziana</i> distribution is described as classical grassland habitats (Olson and Carlquist, 2001)." [Fire ecology unknown]

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	Notes
	Bihrmann's Caudiciforms. (2021). <i>Moringa borziana</i> . http://www.bihrmann.com/caudiciforms/subs/mor-bor-sub.asp . [Accessed 9 Mar 2021]	"Growing in well-drained soil with plenty of water and sun."
	Sunshine Seeds. (2021). <i>Moringa borziana</i> . http://www.sunshine-seeds.de/Moringa-borziana-47235p.html . [Accessed 9 Mar 2021]	"Locations: full sun to semi-shade"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	Notes
	Bihrmann's Caudiciforms. (2021). <i>Moringa borziana</i> . http://www.bihrmann.com/caudiciforms/subs/mor-bor-sub.asp . [Accessed 9 Mar 2021]	"Growing in well-drained soil with plenty of water and sun."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	" <i>Moringa borziana</i> is relatively a woody or small shrub that can grow up to 5 m high."

Qsn #	Question	Answer
412	Forms dense thickets	n
	Source(s)	Notes
	Verdcourt, B. (1985). A synopsis of the Moringaceae. Kew Bulletin 40(1): 1-23	[No evidence] "In dense or open bushland usually Commiphora-Acacia- Terminalia orbicularis but also in Platycelyphium, Dobera, Cordia, Grewia, Delonix and Terminalia, also Calyptrotheca somalensis~C. taitensis, Cordia, Boscia, Sericocomopsis association with Aristida, Chloris, Cenchrus, Tetrapogon grassland on fawn to deep red-orange sands and sandy loams; 30-570m."

501	Aquatic	n
	Source(s)	Notes
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	[Terrestrial] "The locality of M. borziana distribution is described as classical grassland habitats (Olson and Carlquist, 2001)."

502	Grass	n
	Source(s)	Notes
	WFO (2021): <i>Moringa borziana</i> Mattei. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0001085057 . [Accessed 9 Mar 2021]	Angiosperms Brassicales Bromhead Moringaceae Martinov Moringa Adans. Moringa borziana Mattei

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	WFO (2021): <i>Moringa borziana</i> Mattei. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0001085057 . [Accessed 9 Mar 2021]	Angiosperms Brassicales Bromhead Moringaceae Martinov Moringa Adans. Moringa borziana Mattei

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Verdcourt, B. (1985). A synopsis of the Moringaceae. Kew Bulletin 40(1): 1-23	"Subshrub or woody herb, ? rarely a small tree, usually with single stem 1-1.2 m tall arising from a large tuberous root"
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	"The characteristic feature of the plant is it being tuberous that gives rise to new shoots after periodic die back of the aerial parts every few years (Olson, 1999)." [May functionally behave as a geophyte, but this trait would more likely allow the plant to recover from cutting or top damage, as other species in the genus demonstrate]

601	Evidence of substantial reproductive failure in native habitat	n
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Qsn #	Question	Answer
	Source(s)	Notes
	WFO (2021): <i>Moringa borziana</i> Mattei. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0001085057 . [Accessed 9 Mar 2021]	"IUCN Red List Status: Least Concern"

602	Produces viable seed	Y
	Source(s)	Notes
	Bihrmann's Caudiciforms. (2021). <i>Moringa borziana</i> . http://www.bihrmann.com/caudiciforms/subs/mor-bor-sub.asp . [Accessed 9 Mar 2021]	"Propagate: Seeds"
	Sunshine Seeds. (2021). <i>Moringa borziana</i> . http://www.sunshine-seeds.de/Moringa-borziana-47235p.html . [Accessed 9 Mar 2021]	"Propagation: Seeds/Cuttings"
	Habtemariam, S. (2017). <i>The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications</i> . Elsevier, Amsterdam	"The purplish-brown fruits are waxy while the seeds appear to have three conspicuous wings and are about 3.8 cm long."

603	Hybridizes naturally	
	Source(s)	Notes
	Olson, M.E. (2015). April flowers in the <i>Moringa</i> botanical garden. The International <i>Moringa</i> Germplasm Collection. Universidad Nacional Autónoma de México, México DF. http://www.moringaceae.org/ . [Accessed 9 Mar 2021]	[Hybridization documented in genus] "Flowers of a pretty and very vigorous <i>Moringa oleifera</i> X <i>Moringa concanensis</i> hybrid. They have the wide petals of <i>M. oleifera</i> and the pink streaks of <i>M. concanensis</i> "

604	Self-compatible or apomictic	
	Source(s)	Notes
	East, E. M. (1940). The distribution of self-sterility in the flowering plants. <i>Proceedings of the American Philosophical Society</i> 82: 449-518	[Unknown for <i>M. borziana</i>] " <i>Moringa oleifera</i> Lam. is self-fertile though slightly protandrous."
	WFO (2021): <i>Moringa borziana</i> Mattei. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0001085057 . [Accessed 9 Mar 2021]	[Unknown] "Inflorescences 4-5, clustered at apex of stem and/or more scattered lower down on abbreviated branchlets, 5-6 cm. long; axes glabrous; peduncle 1.5-3.5 cm. long; true pedicels above joint 1-1.5 mm. long; apparent stalks 1-1.5 cm. long."

Qsn #	Question	Answer
605	Requires specialist pollinators	n
	Source(s)	Notes
	Olson, M.E. (2015). April flowers in the Moringa botanical garden. The International Moringa Germplasm Collection. Universidad Nacional Autónoma de México, México DF. http://www.moringaceae.org/ . [Accessed 9 Mar 2021]	"Moringa borziana flowers are golden yellow and sweet scented. This combination of traits is typical of bee pollinated flowers."
	Kubitzki, K. & Bayer, C. (eds.). (2003). The Families and genera of vascular plants. Volume V. Flowering Plants. Dicotyledons: Capparales, Malvales and Non-betalain Caryophyllales. Springer Verlag, Berlin, Heidelberg, New York	[Family description] "The sweet-scented flowers are clearly bee-pollinated, and nectar secretion seems to take place on the inside of the receptacle"

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Bihrmann's Caudiciforms. (2021). Moringa borziana. http://www.bihrmann.com/caudiciforms/subs/mor-bor-sub.asp . [Accessed 9 Mar 2021]	"Propagate: Seeds"
	Sunshine Seeds. (2021). Moringa borziana. http://www.sunshine-seeds.de/Moringa-borziana-47235p.html . [Accessed 9 Mar 2021]	"Propagation: Seeds/Cuttings"

607	Minimum generative time (years)	
	Source(s)	Notes
	Rana, M. K. (2018). Vegetable Crop Science. CRC Press, Boca Raton, FL	[Unknown. Grows rapidly] "This small Moringa occurs from southern Kenya to the region of Kisimayu in southern Somalia. Usually, it bears only one or two stems, which typically reach about waist level. These shoots seem to die back to the tuber every few years, but occasionally, the plant may grow into a small tree. Its plant grows to a height of 3 m in the course of 2 months."
	WRA Specialist. (2021). Personal Communication	Unknown. Other species reported to flower in 3 or more years

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Verdcourt, B. (1985). A synopsis of the Moringaceae. Kew Bulletin 40(1): 1-23	"seeds 2.5-3 cm long overall including the wings, with a deep sinus at one end" [No evidence. Seeds lack means of external attachment]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Sunshine Seeds. (2021). Moringa borziana. http://www.sunshine-seeds.de/Moringa-borziana-47235p.html . [Accessed 9 Mar 2021]	Available for purchase online

703	Propagules likely to disperse as a produce contaminant	n
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Qsn #	Question	Answer
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	No evidence. Unlikely. Rare in cultivation & not grown with produce

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Kubitzki, K. & Bayer, C. (eds.). (2003). The Families and genera of vascular plants. Volume V. Flowering Plants. Dicotyledons: Capparales, Malvales and Non-betalain Caryophyllales. Springer Verlag, Berlin, Heidelberg, New York	"Dispersal for species with alate seeds is by wind"
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	"The purplish-brown fruits are waxy while the seeds appear to have three conspicuous wings and are about 3.8 cm long."

705	Propagules water dispersed	
	Source(s)	Notes
	Navie, S. & Csurhes, S. (2010). Weed Risk Assessment. Horseradish tree. <i>Moringa oleifera</i> . The State of Queensland, Department of Employment, Economic Development and Innovation	[<i>M. oleifera</i> possibly water dispersed. Unknown if <i>M. borziana</i> could be dispersed in a similar manner] "While the seeds are relatively large, they are strongly winged. This may allow them to be spread short distances from the parent tree by wind. It may also aid their dispersal downstream in water during floods (the mature pods may also float in water), as populations are sometimes found growing along waterways."

706	Propagules bird dispersed	n
	Source(s)	Notes
	WFO (2021): <i>Moringa borziana Mattei</i> . Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0001085057 . [Accessed 9 Mar 2021]	"Fruits purplish brown with waxy bloom, 11.5-20.5(-25) cm. long, 1-1.4(-2) cm. wide, each valve with 2 grooves." "Seeds 2.5-3.8 cm. long overall, with fertile part 12-15 × 8 mm. the central area of 6-9 × 4-5 mm., with longitudinal raised ridges and ± lateral ridges or smooth or very finely foveolate, reticulate, with 3 conspicuous wings, mostly ± joined at one end of seed but with deep sinus at other end." [Not fleshy-fruited]

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Habtemariam, S. (2017). The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Elsevier, Amsterdam	"The purplish-brown fruits are waxy while the seeds appear to have three conspicuous wings and are about 3.8 cm long." [Unlikely. No means of external attachment]

708	Propagules survive passage through the gut	n
	Source(s)	Notes

Qsn #	Question	Answer
	Kubitzki, K. & Bayer, C. (eds.). (2003). The Families and genera of vascular plants. Volume V. Flowering Plants. Dicotyledons: Capparales, Malvales and Non-betalain Caryophyllales. Springer Verlag, Berlin, Heidelberg, New York	"Dispersal for species with alate seeds is by wind"
	WFO (2021): <i>Moringa borziana</i> Mattei. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0001085057 . [Accessed 9 Mar 2021]	[No evidence that fruit or seeds are consumed or internally dispersed] "Fruits purplish brown with waxy bloom, 11.5-20.5(-25) cm. long, 1-1.4(-2) cm. wide, each valve with 2 grooves. Seeds 2.5-3.8 cm. long overall, with fertile part 12-15 × 8 mm. the central area of 6-9 × 4-5 mm., with longitudinal raised ridges and ± lateral ridges or smooth or very finely foveolate, reticulate, with 3 conspicuous wings, mostly ± joined at one end of seed but with deep sinus at other end."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Verdcourt, B. (1985). A synopsis of the Moringaceae. Kew Bulletin 40(1): 1-23	[Probably no given stature] "Subshrub or woody herb, ? rarely a small tree, usually with single stem 1-1.2 m tall arising from a large tuberous root; stems and leaves glabrous even when very young or with microscopic indumentum; sepals green flushed red; petals yellowish red; ovary glabrous; seeds 2.5-3 cm long overall including the wings, with a deep sinus at one end"

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Rana, M. K. (2018). Vegetable Crop Science. CRC Press, Boca Raton, FL	[Probably resprouts from tuberous root if cut back] "This small <i>Moringa</i> occurs from southern Kenya to the region of Kisimayu in southern Somalia. Usually, it bears only one or two stems, which typically reach about waist level. These shoots seem to die back to the tuber every few years, but occasionally, the plant may grow into a small tree."

Qsn #	Question	Answer
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Grows in tropical climates
- Other *Moringa* species have weedy traits and tendencies
- Reproduces by seeds
- Rapid growth rate
- Seeds dispersed by wind, gravity & intentionally by people
- Resprouts from tuberous roots
- Limited ecological information may limit accuracy of risk prediction

Low Risk Traits

- No reports of invasiveness or naturalization, but no evidence of widespread introduction outside native range
- Unarmed (no spines, thorns, or burrs)
- Not reported to spread vegetatively