



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	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	y=1, n=-1	
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)	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	n
705	Propagules water dispersed	y=1, n=-1	
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	
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: L

WRA Score 1

## Supporting Data:

101	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Is the species highly domesticated? Ssp. manihot is highly domesticated] "Van Borssum Waalkes (1966) states that in <i>A. manihot</i> subsp. manihot, "obviously man has isolated a group with more useful characters ... it must have originated by deliberate selection by man of more useful, ultimately glabrous and smooth forms from wild, hairy and prickly ones.""
101	2005. Staples, G.W./Herbst, D.R.. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	[Is the species highly domesticated? Wild type No. Cultivated types Yes] "...a highly variable species that includes both the domesticated subsp. manihot and the wild subsp. tetraphyllus (Hornemann) Borssum Waalkes, the latter ranging from India through the Philippines and Indonesia to northern Australia." ... "Some cultivars grown as vegetables do not flower and are propagated by cuttings."
101	2007. Walter, A., Lebot, V.. <i>Gardens of Oceania</i> , ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Is the species highly domesticated? Assessment is for wild type] "This bush is one of the ancient plants of Vanuatu, diversified by local farmers and widely eaten in rural areas." ... "Island cabbage (aibika) is an ancient plant in the Melanesian subsistence crop complex. Originally from the Indo-Malayan region, it is found in southern China, from Malaysia to Fiji, and in New Caledonia where it is called chou canaque (Kanak cabbage). Curiously, it was only introduced to Polynesia quite late. In Vanuatu it is present in all types of garden, associated with other crops. It is sold in the markets throughout the year."
101	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). <i>Flora of China</i> . Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Is the species highly domesticated? No evidence] "Borssum Waalkes (Blumea 14: 96–100. 1966) recognized two subspecies: subsp. manihot and subsp. tetraphyllus (Roxburgh) Borssum Waalkes. The latter further divided into var. pungens, with prickly hairs on the epicalyx, and var. tetraphyllus, which is found in Indonesia and Philippines, without such hairs on the epicalyx."
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Species suited to tropical or subtropical climate(s) 2-High] "Native: ASIA-TEMPERATE China: China ASIA-TROPICAL Indian Subcontinent: Bhutan; India; Nepal; Pakistan Indo-China: Myanmar; Thailand [n.] Malesia: Indonesia; Malaysia; Papua New Guinea; Philippines"
202	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Quality of climate match data 2-High]
203	2007. Walter, A., Lebot, V.. <i>Gardens of Oceania</i> , ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Broad climate suitability (environmental versatility)? Possibly No] "Island cabbage (aibika) likes humidity, fertile soils and low altitudes."
203	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). <i>Flora of China</i> . Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Broad climate suitability (environmental versatility)? Possibly Yes] "Grasslands, streamsides, margins of farms; 1000–2100 m." [Environmentally versatile. Elevation range exceeds 1000 m]
204	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). <i>Flora of China</i> . Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Native or naturalized in regions with tropical or subtropical climates? Yes] Genus - "About 15 species: tropical and subtropical regions in E Hemisphere; six species (one endemic, one introduced) in China." ... Species -"Grasslands, streamsides, margins of farms; 1000–2100 m. Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan [India, Nepal, Philippines, N Thailand]."
205	1988. Fryxell, P.A.. <i>Malvaceae of Mexico</i> . Systematic Botany Monographs. 25: 1-522.	[Does the species have a history of repeated introductions outside its natural range? Mexico]
205	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Does the species have a history of repeated introductions outside its natural range? Yes]
205	2005. Staples, G.W./Herbst, D.R.. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	[Does the species have a history of repeated introductions outside its natural range? Hawaii]
301	1988. Fryxell, P.A.. <i>Malvaceae of Mexico</i> . Systematic Botany Monographs. 25: 1-522.	[Naturalized beyond native range? Yes] " <i>Abelmoschus manihot</i> occurs from southern Asia to New Guinea and Australia; it is introduced in cultivation and sometimes naturalized in Mexico, generally near human habitation, usually in hot, humid lowlands"

301	2001. Werren, G.. Environmental Weeds of the Wet Tropics Bioregion: Risk Assessment & Priority Ranking. Rainforest CRC, Cairns, Australia	[Naturalized beyond native range? Yes] "Appendix 2 – List of exotic plants that have naturalised within the Wet Tropics Bioregion – arranged alphabetically by family (Source: Queensland Herbarium records (HERBRECS) to November 2000; emended by concatenating conspecific subspecies/varieties (indicated by strikethrough), and inserting additional species (in red font) otherwise known to have naturalised within the region)" [ <i>Abelmoschus manihot</i> included in list]
301	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga <a href="http://cookislands.bishopmuseum.org">http://cookislands.bishopmuseum.org</a>	[Naturalized beyond native range? Not in Cook Islands] "Introduced - Recent, Not naturalised; Land, lowlands"
301	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). Flora of China. Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Naturalized beyond native range? Escaped] "Borssum Waalkes (Blumea 14: 96–100. 1966) recognized two subspecies: subsp. <i>Manihot</i> and subsp. <i>tetraphyllus</i> (Roxburgh) Borssum Waalkes. The latter further divided into var. <i>pungens</i> , with prickly hairs on the epicalyx, and var. <i>tetraphyllus</i> , which is found in Indonesia and Philippines, without such hairs on the epicalyx." ... "Plants with few prickly hairs have been selected for cultivation and sometimes are found as escapes."
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? Possibly] Cited as a weed of unspecified impacts
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No evidence]
304	2001. Werren, G.. Environmental Weeds of the Wet Tropics Bioregion: Risk Assessment & Priority Ranking. Rainforest CRC, Cairns, Australia	[Environmental weed? No] Listed as naturalized
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed?] Other species listed as weeds of unspecified impacts
401	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Produces spines, thorns or burrs? No] "Subshrubs to 2.5 m tall, the stems sparsely antrorsely pubescent with short rigid hairs. Leaf blades mostly 8-12 cm long, slightly wider than long, usually 5-lobed, coarsely dentate, glabrate above and beneath; petioles usually shorter than the blades."
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Presumably No] Widely cultivated food plant with no reports or indications of allelopathic properties
403	1981. Smith, A.C.. Flora Vitiensis Nova - A New Flora of Fiji (Spermatophytes Only). Volume 2. Pacific Tropical Botanical Garden, Lawai, HI	[Parasitic? No] "... <i>Abelmoschus manihot</i> is seen as a coarse, perennial, often suffruticose herb 1-3 m. high..." [Malvaceae]
404	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Unpalatable to grazing animals? Palatable to humans so probably palatable to animals] "The commonly cultivated varieties of aibika are nonhairy, with soft, palatable leaves, although within the Papua New Guinea collection there are varieties with hairy stems and hard-textured leaves"
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Host for recognized pests and pathogens?] "As with other cultivated Malvaceae, such as okra and cotton, aibika is attractive to insects." ... "Table 24 summarizes information on nematodes associated with aibika (Pacific Plant Protection Information System 1996). Infestation with root knot nematodes can often be observed. Page (1986) describes aibika as an important host of <i>Meloidogyne incognita</i> and <i>M. javanica</i> . She suspects that these two species may cause conditions favourable to collar rot. Root knot galls can often be observed without collar rot symptoms. Muthappa (1987) found <i>Aphelenchus avenae</i> associated with collar rot symptoms. Further investigation is needed to clarify the role of nematodes in aibika collar rot (see Collar Rot Complex). Other serious pests of aibika include slugs and the Giant African Snail ( <i>Achatina fulica</i> Bowd)."
406	2007. Walter, A., Lebot, V.. Gardens of Oceania, ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Host for recognized pests and pathogens? General invertebrate pests] "Its two main pests are the Giant African Snail ( <i>Achatina fulica</i> ) which eats the buds of recently planted cuttings, and a small polyphagous beetle ( <i>Adoretus versutus</i> ) which likes the tender leaves and turns them into lacework full of holes."
407	1981. Smith, A.C.. Flora Vitiensis Nova - A New Flora of Fiji (Spermatophytes Only). Volume 2. Pacific Tropical Botanical Garden, Lawai, HI	[Causes allergies or is otherwise toxic to humans? No evidence] "the young leaves and branch tips are cooked and eaten as greens. At least four different forms, presumably cultivars, are recognized by Fijians."

407	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Causes allergies or is otherwise toxic to humans? No evidence] "The masticated seeds, applied to the site of the bite, are said to be effective against poisonous snakes."
407	2007. Walter, A., Lebot, V.. Gardens of Oceania, ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Causes allergies or is otherwise toxic to humans? No evidence] "Island cabbage (aibika), whose leaves become gluey after cooking, is the favourite vegetable of the ni-Vanuatu. They cook it in different ways. Most often it is cut into very thin strips, boiled in a little salted water and then flavoured with coconut milk. The broad leaves of certain cultivars are used as the outer covering of small lap-laps of banana or cassava, cooked in a marmite. The leaves may also be cooked with pieces of meat in an oven of hot stones. They are sometimes fried on the stove. Whatever mode of cooking is chosen, the leaves are rarely cooked by themselves and they mix well with onions, other green leaves, coconut milk, fish and meat. The leaves are rich in protein, calcium and vitamins A and C." ... "It is sometimes used as a medicinal plant in Papua New Guinea, Indonesia and other Oceanian islands. In Vanuatu the hot stems are applied to fungal infections of the feet. Women in labour drink a decoction of aibika to ease labour, and it is also said to stimulate lactation."
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No evidence]
408	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Creates a fire hazard in natural ecosystems? No evidence based on ecology] "Aibika thrives in tropical lowland environments (altitude 0-500 m). In Papua New Guinea it is cultivated both in the seasonally dry lowlands (annual rainfall 1000 - 2000 mm) and in the wet lowlands (annual rainfall >2000 mm). It is also cultivated in the highlands (altitude >2000 m, annual rainfall >2000 mm) though, as for the sweet potato staple, growth is relatively slow at higher altitudes, and insect damage to aibika is relatively severe at high altitudes. R.M. Bourke (pers. comm.) recorded aibika as high as 2110 m and observed a sharp upper altitudinal limit at 1900 ± SE 110 m, in a sample of 20 areas."
409	2012. Plants for a Future Database. <i>Abelmoschus manihot</i> . <a href="http://www.pfaf.org/user/Plant.aspx?LatinName=Abelmoschus+manihot">http://www.pfaf.org/user/Plant.aspx?LatinName=Abelmoschus+manihot</a> [Accessed 03 Dec 2012]	[Is a shade tolerant plant at some stage of its life cycle? No] "It cannot grow in the shade. It prefers moist soil."
410	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Tolerates a wide range of soil conditions? Yes] "Aibika tolerates a wide range of soil types but grows best in sandy loam and clay loam soils with pH between 5 and 7. Growth is poor on the highly alkaline soils of the coral atolls, because of micronutrient deficiencies and drought. Composting is necessary to ensure vigorous growth under atoll conditions (see Chapter 11 - Agronomy)."
411	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Climbing or smothering growth habit? No] "Subshrubs to 2.5 m tall"
412	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Forms dense thickets? No evidence] "it is introduced in cultivation and sometimes naturalized in Mexico, generally near human habitation, usually in hot, humid lowlands"
412	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Forms dense thickets? No evidence]
412	2008. Franklin, J./Keppel, G./Whistler, W.A. .. The vegetation and flora of Lakeba, Nayau and Aiwa Islands, Central Lau Group, Fiji. <i>Micronesica</i> . 40(1/2): 169-225.	[Forms dense thickets? No evidence] "Aboriginal introduction. Trop. Asia. Subshrub with alternate, palmately lobed leaves. Perennial shrub planted in food gardens"
501	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Aquatic? No] Terrestrial
502	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Grass? No] Malvaceae
503	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Nitrogen fixing woody plant? No] Malvaceae
504	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Subshrubs to 2.5 m tall, the stems sparsely antrorsely pubescent with short rigid hairs."
601	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). Flora of China. Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Evidence of substantial reproductive failure in native habitat? No evidence]

602	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Produces viable seed? Yes] "Capsules 5-6 cm long, 2.5 cm in diameter, fusiform, apically acuminate, hispid with spreading simple hairs 3 mm long; seeds 3.5 mm long, minutely pubescent, striped."
602	2007. Walter, A., Lebot, V.. Gardens of Oceania, ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Produces viable seed? Yes] "It is an autogamous plant that is propagated by cuttings but can produce fertile seeds."
603	1982. Siemonsma, J.S.. West african okra—Morphological and cytogenetical indications for the existence of a natural amphidiploid of <i>Abelmoschus esculentus</i> (L.) Moench and <i>A. manihot</i> (L.) Medikus. Euphytica. 31(1): 241-252.	[Hybridizes naturally? Possibly. Able to artificially cross] "Interspecific hybridization . There are no reports on failure of 'intraspecific' crosses in <i>A. esculentus</i> , but crosses between the races or species $2n = 72$ and $2n = \pm 130$ have, to my knowledge, never been tried . On the other hand, Pal et al., (1952) obtained sterile hybrids in crosses between different forms of <i>A. manihot</i> in a wide sense ."
604	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Self-compatible or apomictic? Yes] " <i>Abelmoschus</i> species are self-fertile (Hamon and Koechlin 1991a). Hand-pollination and studies of seedling phenotypes indicate that aibika is self-fertile (Westwood and Kesavan 1982)."
604	2002. Tyagi , A.P.. Cytogenetics and Reproductive Biology of some BELE ( <i>Abelmoschus manihot</i> Linn., Medic Sub-Species manihot) Cultivars. The South Pacific Journal of Natural Science. 20(1): 4-8.	[Self-compatible or apomictic? Yes] "Four locally grown (from Fiji Islands) and three imported (from Papua New Guinea), a total of seven BELE ( <i>Abelmoschus manihot</i> Linn., Medic sub-species manihot) cultivars were investigated for their cytogenetics and reproductive biology. Chromosome counting from flower buds and root tips showed that chromosome number in all the seven cultivars does not exceed $2n=66$ . Pollen viability in all the seven cultivars was high, exceeding 85% from pollen staining technique and 78% from pollen germination technique. All the seven Bele cultivars were fully self-compatible. Cross-compatibility among four local cultivars and three cultivars from Papua New Guinea was very high. However cross compatibility between local (Fijian) cultivars and cultivars from Papua New Guinea was partial indicating some degree of genetic difference between cultivars from two countries. This could be due to differences in compatibility alleles between cultivars from Fiji and Papua New Guinea. Procedures such as cutting the style shorter and placing pollen grains to enhance and affect fertilisation to get cross seed were suggested."
604	2007. Walter, A., Lebot, V.. Gardens of Oceania, ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Self-compatible or apomictic? Yes] "It is an autogamous plant that is propagated by cuttings but can produce fertile seeds." [Self fertilization (also known as autogamy) occurs in hermaphroditic organisms where the two gametes fused in fertilization come from the same individual.]
605	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Requires specialist pollinators?] "Pedicels 1.5-7 cm long, antrorsely hispid; involucl of 4-6 lanceolate to ovate bracts, each 5-8 mm wide, more or less persistent; calyx 2-2.5 cm long, soft pubescent; corolla 6 cm long; anthers pallid; stigmas purple."
605	2011. Tadarwal, A./Jain, P./Bari, S.. <i>Abelmoschus manihot</i> Linn: ethnobotany, phytochemistry and pharmacology. Asian Journal of Traditional Medicines. 6(1): 1-7.	[Requires specialist pollinators? No evidence] "Flowers sprout in the warmer months and they are pollinated by insects with variable levels of cross-fertilization."
606	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Reproduction by vegetative fragmentation? No evidence of natural vegetative spread] "Aibika is easy to grow and is normally propagated by stem cuttings. Seed is only produced by some varieties and in small quantities. Seedling growth is relatively slow."
607	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). Flora of China. Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Minimum generative time (years)? <1] "Herbs annual or perennial, 1–2 m tall, most parts long simple-hispid and minutely simple- or few rayed pubescent. Stipules linear-lanceolate, sometimes 2 on each side of petiole, 1–1.5 cm; petiole 6–18 cm; leaf blade palmately 5–9-lobed, 15– 30 cm in diam., lobes oblong-lanceolate, sometimes $\pm$ pinnately lobed, 8–18 $\times$ 1–6 cm, sparsely long hispid on both surfaces, margin robustly, obtusely serrate."
607	2012. Plants for a Future Database. <i>Abelmoschus manihot</i> . <a href="http://www.pfaf.org/user/Plant.aspx?LatinName=Aabelmoschus+manihot">http://www.pfaf.org/user/Plant.aspx?LatinName=Aabelmoschus+manihot</a> [Accessed 03 Dec 2012]	[Minimum generative time (years)? 1] " A perennial plant, it is generally tender in the temperate zone but can be grown outdoors as an annual, flowering well in its first year and setting seed[200, K]. Plants will occasionally overwinter in a cold greenhouse[K]. It grows well in an ornamental vegetable garden[200]."

701	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No evidence] "Capsule oblong-ovoid, pentagonous, acuminate, 3.5-6 by 2-2.5 cm, with 5 prominent costae, between the costae concave, usually densely hispid especially on the costae, and often stellate tomentose; valves inside shining, yellow, hirsute by white simple hairs. Seeds globular to reniform, 3-4 mm diam, with minute warts and stellate hairs in concentric rows, glabrescent, dark brown or black." ... "It seems unlikely that <i>A. manihot</i> , with relatively large, smooth seeds, would be carried long distances by animals, birds, wind or water. Dispersal of vegetative material by man is more probable." [Capsules/seeds lack means of external attachment]
702	2007. Walter, A., Lebot, V.. Gardens of Oceania, ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Propagules dispersed intentionally by people? Yes] "It is often planted around the edges of gardens where it then serves as a hedge and a windbreak."
703	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Propagules likely to disperse as a produce contaminant? No evidence] "Aibika is easy to grow and is normally propagated by stem cuttings. Seed is only produced by some varieties and in small quantities."
704	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Propagules adapted to wind dispersal? No evidence] "Capsule oblong-ovoid, pentagonous, acuminate, 3.5-6 by 2-2.5 cm, with 5 prominent costae, between the costae concave, usually densely hispid especially on the costae, and often stellate-tomentose; valves inside shining, yellow, hirsute by white simple hairs. Seeds globular to reniform, 3-4 mm diam, with minute warts and stellate hairs in concentric rows, glabrescent, dark brown or black." ... "It seems unlikely that <i>A. manihot</i> , with relatively large, smooth seeds, would be carried long distances by animals, birds, wind or water. Dispersal of vegetative material by man is more probable." [Capsules & seeds lack obvious adaptations for wind dispersal]
705	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). Flora of China. Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Propagules water dispersed? Distribution suggests possibly yes] "Grasslands, streamsides, margins of farms; 1000–2100 m."
706	1988. Fryxell, P.A.. Malvaceae of Mexico. Systematic Botany Monographs. 25: 1-522.	[Propagules bird dispersed? Probably No. Not fleshy-fruited] "Capsules 5-6 cm long, 2.5 cm in diameter, fusiform, apically acuminate, hispid with spreading simple hairs 3 mm long; seeds 3.5 mm long, minutely pubescent, striped."
707	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Propagules dispersed by other animals (externally)? No] "Capsule oblong-ovoid, pentagonous, acuminate, 3.5-6 by 2-2.5 cm, with 5 prominent costae, between the costae concave, usually densely hispid especially on the costae, and often stellate tomentose; valves inside shining, yellow, hirsute by white simple hairs. Seeds globular to reniform, 3-4 mm diam, with minute warts and stellate hairs in concentric rows, glabrescent, dark brown or black." ... "It seems unlikely that <i>A. manihot</i> , with relatively large, smooth seeds, would be carried long distances by animals, birds, wind or water. Dispersal of vegetative material by man is more probable." [Seeds lack means of external attachment]
708	2012. WRA Specialist. Personal Communication.	[Propagules survive passage through the gut? Unknown]
801	1998. Preston, S.R.. Aibika I Bele. <i>Abelmoschus manihot</i> eL.) Medik. Promoting the conservation and use of underutilized and neglected crops. 24. IPGRI / IPK, Rome / Gatersleben	[Prolific seed production (>1000/m <sup>2</sup> )? Probably No] "Aibika is easy to grow and is normally propagated by stem cuttings. Seed is only produced by some varieties and in small quantities."
801	2007. Walter, A., Lebot, V.. Gardens of Oceania, ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Prolific seed production (>1000/m <sup>2</sup> )? Unlikely] "The fruit is pear-shaped and is a five-sided capsule, measuring 4–6 cm x 2 cm and containing numerous seeds."
801	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. ( eds.). Flora of China. Vol. 12 (Hippocastanaceae through Theaceae).. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Prolific seed production (>1000/m <sup>2</sup> )? Unlikely] "Capsule ovoid-ellipsoid, 4–5 x 2.5–3 cm, densely hirsute. Seeds many, reniform, with several lines of hairs."
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a>	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "Storage Behaviour: Orthodox? Storage Conditions: This species may show orthodox seed storage behaviour"
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species

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804	2007. Walter, A., Lebot, V.. Gardens of Oceania, ACIAR Monograph No. 122. Australian Centre for International Agricultural Research / IRD Editions,	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Growth is very rapid, and after two months a number of leaves can be harvested each week. After one year the bush is fully developed and the leaves can be cut more often and more extensively, which increases the branching of the plant. Island cabbage is available throughout the year. It continues to grow beyond one year, but tends to develop too much vegetative growth after three years of age. It is then necessary either to prune it back where it is or to abandon it and replant elsewhere."
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

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## **Summary of Risk Traits**

### **High Risk / Undesirable Traits**

- Naturalized in Mexico, Australia and possibly elsewhere
- Thrives in tropical climates
- Potentially weedy relatives in genus
- Tolerates many soil conditions (and potentially able to exploit many different habitat types)
- Self-fertile
- Potential to reach maturity in under 1 year
- Viable seeds dispersed by people, and possibly water
- Ability to resprout after repeated cutting

### **Low Risk / Desirable Traits**

- Despite ability to spread, no serious negative impacts have been documented
- Long history of cultivation and domestication. Certain cultivars may produce limited or no seeds
- Shade intolerant
- Leaves and branch tips cooked and eaten as greens
- Non-toxic
- Relatively large capsules and seeds, if produced, are unlikely to be inadvertently dispersed