

Taxon: Cucumis dipsaceus Ehrenb. ex Spach	Family: Cucurbitaceae
Common Name(s): hedgehog cucumber hedgehog gourd teasel gourd wild cucumber	Synonym(s): Momordica dasycarpa Hochst. ex A.Rich.

Assessor: Chuck Chimera	Status: Approved	End Date: 5 Nov 2023
WRA Score: 11.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Annual Vine, Naturalized, Disturbance Weed, Fodder, Self-Fertile

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	y = 1*multiplier (see Appendix 2), n = 0	y
303	Agricultural/forestry/horticultural weed		
304	Environmental weed		
305	Congeneric weed	y = 1*multiplier (see Appendix 2), n = 0	y
401	Produces spines, thorns or burrs	y = 1, n = 0	n
402	Allelopathic		
403	Parasitic	y = 1, n = 0	n
404	Unpalatable to grazing animals	y = 1, n = -1	n
405	Toxic to animals	y = 1, n = 0	n
406	Host for recognized pests and pathogens	y = 1, n = 0	y
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle		

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y = 1, n = 0	n
411	Climbing or smothering growth habit	y = 1, n = 0	y
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	y = 1, n = -1	y
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation	y = 1, n = -1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
702	Propagules dispersed intentionally by people	y = 1, n = -1	y
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal	y = 1, n = -1	n
705	Propagules water dispersed	y = 1, n = -1	n
706	Propagules bird dispersed	y = 1, n = -1	y
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/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		
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
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[No evidence] "Native to eastern Africa; in Hawai'i widely naturalized in dry, disturbed sites, 0-400 m, on all of the main islands except Moloka'i. First collected on O'ahu in 1903 (Bryan s.n., BISH)."
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2023). Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2023). 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
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to eastern Africa; in Hawai'i widely naturalized in dry, disturbed sites, 0-400 m, on all of the main islands"
202	Quality of climate match data	High
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to eastern Africa"
203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"in Hawai'i widely naturalized in dry, disturbed sites, 0-400 m"
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 3 Nov 2023]	[Potential broad elevation range of 2000 m in tropical climates] " <i>Cucumis dipsaceus</i> is a plant of drier areas in the lowland tropics, ascending to elevations up to 2000 m." ... "Latitude North (°N) = 30 Latitude South (°S) = -10"

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to eastern Africa; in Hawai'i widely naturalized in dry, disturbed sites, 0-400 m, on all of the main islands"

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Kirkbride, J. H. (1993). Biosystematic Monograph of the Genus <i>Cucumis</i> (Cucurbitaceae): Botanical Identification of Cucumbers and Melons. Parkway Publishers, Boone, NC	"Distribution: Africa: Ethiopia, Kenya, Somalia, Tanzania, Uganda, and possibly native to Sudan and southern Egypt. Introduced: widely adventive in the tropics."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to eastern Africa; in Hawai'i widely naturalized in dry, disturbed sites, 0-400 m, on all of the main islands except Moloka'i. First collected on O'ahu in 1903 (Bryan s.n., BISH)."
	Woodson, R. E., Schery, R. W., & Wunderlin, R. P. (1978). Flora of Panama. Part IX. Family 182. Cucurbitaceae. Annals of the Missouri Botanical Garden, 65(1), 285-366	"Native to the Old World tropics, this species is sparingly naturalized in the Neotropics, occurring in dry, disturbed thickets, old fields, and roadsides. Panamanian specimens have been seen from Darien and the Canal Zone, but it is likely to be encountered elsewhere."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2023). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 2 Nov 2023]	"Naturalized Northern America SOUTH-CENTRAL U.S.A.: United States [Texas (s.)] NORTHERN MEXICO: Mexico [San Luis Potosí, Sinaloa, Tamaulipas, Baja California Sur] SOUTHERN MEXICO: Mexico [Jalisco, Veracruz de Ignacio de la Llave] Pacific NORTH-CENTRAL PACIFIC: United States [Hawaii] Southern America CARIBBEAN: Cuba CENTRAL AMERICA: Panama NORTHERN SOUTH AMERICA: Venezuela WESTERN SOUTH AMERICA: Ecuador, Peru"
	Wysong, M., Hughes, G. & Wood, K.R. (2007). New Hawaiian plant records for the island of Moloka'i. Bishop Museum Occasional Papers 96: 1-8	[Molokai] " <i>Cucumis dipsaceus</i> Ehrenb. ex Spach New island record Native to eastern Africa, <i>C. dipsaceus</i> (hedgheg or teasel gourd) was first collected on O'ahu in 1903 (Bryan s.n., BISH 47819). In Hawai'i it has been previously known to be widely naturalized in dry, disturbed sites on all the main islands except Moloka'i (Wagner et al. 1999). Material examined. MOLOKA'I: Kalaupapa peninsula, along the fence behind the state quonset hut, single plant found and subsequently treated with a foliar herbicide, 12 m, 7 Apr 2005, Wysong 753."

302	Garden/amenity/disturbance weed	y
	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	"a weed of cultivation, disturbed woodland, dry bushland, wooded grassland, bushland, in open disturbed areas, caatinga"

Qsn #	Question	Answer
	NC State Extension. (2023). <i>Cucumis dipsaceus</i> . https://plants.ces.ncsu.edu/plants/cucumis-dipsaceus/ . [Accessed 4 Nov 2023]	"Can be weedy and has become problematic in some tropical areas of the world including Mexico and South America."
	Haselwood, E.L., Motter, G.G., & Hirano, R.T. (eds.). (1983). Handbook of Hawaiian Weeds. University of Hawaii Press, Honolulu, HI	"Found in arid, sunny regions at lower elevations. A weed in pastures, rangelands, and waste places."
	Woodson, R. E., Schery, R. W., & Wunderlin, R. P. (1978). Flora of Panama. Part IX. Family 182. Cucurbitaceae. Annals of the Missouri Botanical Garden, 65(1), 285-366	"Neotropics, occurring in dry, disturbed thickets, old fields, and roadsides."
	Tye, A., Soria, M. C., & Gardener, M. R. (2002). A strategy for Galapagos weeds. Pp. 336-341 in Veitch, CR and MN Clout. Turning the tide: the eradication of invasive species. IUCN, Gland, Switzerland	"Table 1. Invasive species in Galapagos that are known or suspected to be causing significant ecological change, including in natural areas." [Cucumis dipsaceus listed among known or suspected weeds]
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	[A potential environmental weed, although impacts in the Galapagos have not been corroborated with the cited references] " <i>Cucumis dipsaceus</i> is an annual climbing herb native to Africa and the Arabian Peninsula that has become invasive in many regions around the world where it spread or was introduced. In Mexico, this species is possibly expanding and is classified as an invasive. In the Galapagos Islands <i>C. dipsaceus</i> has invaded a large area and is affecting the natural ecosystem by altering community composition and threatening native species."

303	Agricultural/forestry/horticultural weed	
	Source(s)	Notes
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	[Possibly, although impacts may be primarily as a host of crop pathogens. See 4.06] " <i>Cucumis dipsaceus</i> is reported as a weed of cotton in Venezuela (Vibrans, 2017). It is a host for zucchini yellow mosaic virus (ZYMV), which can then spread to other cucurbits, including crops (Komata et al., 2014)."

304	Environmental weed	
	Source(s)	Notes
	Haselwood, E.L., Motter, G.G., & Hirano, R.T. (eds.). (1983). Handbook of Hawaiian Weeds. University of Hawaii Press, Honolulu, HI	"A weed in pastures, rangelands, and waste places."
	Tye, A., Soria, M. C., & Gardener, M. R. (2002). A strategy for Galapagos weeds. Pp. 336-341 in Veitch, CR and MN Clout. Turning the tide: the eradication of invasive species. IUCN, Gland, Switzerland	"Table 1. Invasive species in Galapagos that are known or suspected to be causing significant ecological change, including in natural areas." [Cucumis dipsaceus listed among known or suspected weeds. Unclear if it is having significant environmental impacts]
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	[A potential environmental weed, although impacts in the Galapagos have not been corroborated with the cited references] " <i>Cucumis dipsaceus</i> is an annual climbing herb native to Africa and the Arabian Peninsula that has become invasive in many regions around the world where it spread or was introduced. In Mexico, this species is possibly expanding and is classified as an invasive. In the Galapagos Islands <i>C. dipsaceus</i> has invaded a large area and is affecting the natural ecosystem by altering community composition and threatening native species."
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Possibly, but primarily occurs in disturbed, modified habitats] "in Hawai'i widely naturalized in dry, disturbed sites"

305	Congeneric weed	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Shaik, R. S., Burrows, G. E., Urwin, N. A., Gopurenko, D., Lepschi, B. J., & Weston, L. A. (2017). The biology and management of prickly paddy melon (<i>Cucumis myriocarpus</i> L.), an important summer annual weed in Australia. <i>Crop Protection</i> , 92, 29-40	" <i>Cucumis myriocarpus</i> is an annual cucurbitaceous summer weed infesting fallow fields and pastures. Infestation results in reduced moisture availability for winter cereal crops as well as reduced crop yields and pasture quality. The need to manage this weed is of paramount importance given its adverse effects on farming systems, biodiversity and grazing livestock and its ranking as the number one weed of importance in Australian summer fallows of grain crops. Land management practices, including movement of grazing animals and over-stocking, are potentially assisting the spread of <i>Cucumis myriocarpus</i> fruits and viable seed. The plant is characterized by the presence of small, ellipsoid to spherical melon fruits with spiny appendages. Each plant can produce up to 50 or more melons per plant, with each fruit containing up to 200 viable seeds. Seed is often dormant upon fruit maturity and our results under controlled environmental conditions suggest both physiological and physical factors influence dormancy. Under field conditions, seedlings can form large vines growing upto 3 m in length. Field pollination experiments suggest that this melon is mainly self-pollinated by insects, including bees, flies and wasps. <i>Cucumis myriocarpus</i> is generally managed by the use of various broadleaf phenoxy herbicides and systemic post-emergent products. It is found in this study that this weed established through multiple flushes of germination, hence multiple herbicidal applications coinciding with rainfall events one suggested for more efficacious management. However, rotation of infested pastures with cereal crops such as canola and wheat also results in improved control. Additional studies into the impact of soil with and physical properties, disturbance and grazing, are recommended for development of more efficacious control measures. This review discusses taxonomy, genetic variation, biology and ecology and management of this important summer annual weed."
	Grichar, W. J. (2009). Control of smellmelon (<i>Cucumis melo</i>) in soybean with herbicides. <i>Weed Technology</i> , 21 (3): 777-779	[<i>Cucumis melo</i>] "Smellmelon is becoming more of a problem in soybean and corn (<i>Zea mays</i> L.) along the Texas Gulf Coast as well as in the south Texas peanut (<i>Arachis hypogaea</i> L.) production area (author's personal observation). The range of smellmelon stretches from Georgia to the southern part of California and as far north as Arkansas (SWSS 1999)."
	Queensland Government. (2023). Weeds of Australia. <i>Cucumis myriocarpus</i> . https://keyserver.lucidcentral.org/weeds/data/media/Html/cucumis_myriocarpus.htm . [Accessed 3 Nov 2023]	[<i>Cucumis myriocarpus</i>] "This vine is regarded as an environmental weed in Victoria, Queensland, South Australia, Western Australia and the Northern Territory. It is mainly seen as a weed of disturbed sites, roadsides and agricultural areas (i.e. pastures and crops), however it is also widespread in rangelands and natural communities (e.g. grasslands and open woodlands). In the Northern Territory, prickly paddymelon (<i>Cucumis myriocarpus</i>) has been recorded as a weed of arid wetlands. It has also been recorded from conservation areas in South Australia (e.g. Hallett Cove Conservation Park, Coorong National Park, Onkaparinga River National Park and Flinders Ranges National Park), Victoria (e.g. Organ Pipes National Park and Dookie Bushland Reserve) and New South Wales (e.g. Five Islands Nature Reserve)."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Fruit softly spiny or bristly. Not known to be physically harmful] "Stems up to several m long, hispid. Leaves cordate, reniform to broadly ovate with a basal sinus, blades 2-8 cm long, 3-9 cm wide, sometimes shallowly 3-lobed, both surfaces hispid, margins denticulate, apex obtuse, petioles 2-10 cm long. Staminate flowers solitary or in clusters of 2-4, pedicels 6-12 mm long, calyx lobes linear, 2-3 mm long, corolla lobes yellow, 7-12 mm long; pistillate flowers solitary, sometimes co-axillary with staminate flowers, pedicels 2-6 mm long, hypanthium 6-10 mm long, hispid. Fruit yellow, subglobose to ellipsoid, 2-7 cm long, 1.5-3.5 cm in diameter, densely and softly spiny or bristly, spines slender, 3-8 mm long, pulp green. Seeds very pale brown, 3-5 mm long"

402	Allelopathic	
	Source(s)	Notes
	Lockerman, R. H., & Putnam, A. R. (1979). Evaluation of allelopathic cucumbers (<i>Cucumis sativus</i>) as an aid to weed control. <i>Weed Science</i> , 27(1): 54-57	[Unknown. Documented in genus] "Abstract. Cucumber (<i>Cucumis sativus</i> L.) accessions which had demonstrated allelopathy under controlled environmental conditions were evaluated in the field. Plant introduction (PI) 169391 suppressed proso millet (<i>Panicum miliaceum</i> L.) fresh weight and population 58 and 84%, respectively. Total overseeded and volunteer weed population was reduced 54% when grown in association with PI 169391. Plant introduction 169391 was approximately twice as effective as PI 285605 in suppressing proso millet growth. Inhibition of weed species did not occur consistently in the field. The allelopathic effect of cucumbers was suppressed during periods of increased rainfall. However, these tests demonstrated that allelopathic activity could be obtained under certain edaphic and environmental conditions."

403	Parasitic	n
	Source(s)	Notes
	Woodson, R. E., Schery, R. W., & Wunderlin, R. P. (1978). Flora of Panama. Part IX. Family 182. Cucurbitaceae. <i>Annals of the Missouri Botanical Garden</i> , 65(1), 285-366	"Vines; stems hispid. Leaves suborbicular to reniform, 5-10 cm long, as broad or broader than long, slightly 3- to 5-angulate, the base cordate, the apex of the lobes rounded, the margin dentate, membranaceous or chartaceous, both surfaces hispid or scabrous; petiole 5-12 cm long, hispid." [Cucurbitaceae. No evidence]

404	Unpalatable to grazing animals	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	"leaves and fruit for fodder, foliage grazed by goats and camel, fruit liked by donkeys, pulp eaten by squirrels, tender leaves and young shoots used as a vegetable"

Qsn #	Question	Answer
405	Toxic to animals	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	"leaves and fruit for fodder, foliage grazed by goats and camel, fruit liked by donkeys, pulp eaten by squirrels, tender leaves and young shoots used as a vegetable"
	ASPCA. (2023). Toxic and Non-Toxic Plants - Hedgehog Gourd. https://www.aspc.org/pet-care/animal-poison-control/toxic-and-non-toxic-plants/hedgehog-gourd . [Accessed 3 Nov 2023]	"Toxicity: Non-Toxic to Dogs, Non-Toxic to Cats, Non-Toxic to Horses Toxic Principles: Non-toxic"

406	Host for recognized pests and pathogens	y
	Source(s)	Notes
	Ullman, D. E., Cho, J., & German, L. (1991). Occurrence and distribution of cucurbit viruses in the Hawaiian Islands. <i>Plant Disease</i> , 75(4), 367-370	"Abstract : Zucchini yellow mosaic potyvirus (ZYMV), an isolate of papaya ringspot (type W) potyvirus (PRSV-W), and cucumber mosaic cucumovirus (CMV) were found infecting commercially grown cucurbits on the Hawaiian islands of Oahu, Maui and Molokai, USA, during 1988 and 1989. Although previously reported in the Hawaiian Islands, watermelon mosaic II potyvirus was not found. Composition of virus epidemics varied widely among the 3 islands, even though all 3 viruses, alternate weed hosts and aphid vectors are present throughout the state. Twenty-eight weed species were sampled. CMV, PRSV-W and ZYMV infections were found in 3 species of the family Cucurbitaceae: Momordica charantia (weedy form of bittermelon), Cucumis dipsaceus (wild cucumber) and Lagenaria siceraria (bottle gourd). Although many of the weed species tested did not appear to serve as alternative virus hosts, aphid surveys demonstrated that many of the same weed species are alternate hosts for at least 5 important aphid vector species, including Aphis gossypii and Myzus persicae. "
	Dube, S. (2017). Cucumis dipsaceus (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed]	"Cucumis dipsaceus is reported as a weed of cotton in Venezuela (Vibrans, 2017). It is a host for zucchini yellow mosaic virus (ZYMV), which can then spread to other cucurbits, including crops (Komata et al., 2014)."
	NC State Extension. (2023). Cucumis dipsaceus. https://plants.ces.ncsu.edu/plants/cucumis-dipsaceus/ . [Accessed 4 Nov 2023]	"Diseases, Insect Pests, and Other Plant Problems: No significant problems. Can be weedy and has become problematic in some tropical areas of the world including Mexico and South America."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes
	Njoroge, G. N., & Newton, L. E. (1994). Edible and poisonous species of Cucurbitaceae in the Central Highlands of Kenya. <i>Journal of East African Natural History</i> , 83(2), 101-115	"In northern parts of Kenya the leaves of Cucumis dipsaceus Enhreb. ex Spach. are eaten as vegetables (Tanner n.d. EA; Verdcourt & Trump, 1969)." ... "Table 1: Occurrence of cucurbitacins in different organs. Toxic cucurbitacins are C, D, E and I" [Cucumis dipsaceus Roots, Stem and Leaves may contain chemicals that could be toxic if consumed]
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Fruit may be poisonous, although conflicting evidence exists] "Fruit poisonous or toxic. Pounded leaves and roots a poultice to treat wounds. Fruit juice emetic or purgative, used as an antidote for poisoning, but it has to be supplemented by drinking fresh milk served immediately after vomiting; juice from fruits used to rub on swollen neck glands. Fruit mixed with honey to treat constipation."

408	Creates a fire hazard in natural ecosystems	
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Qsn #	Question	Answer
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"widely naturalized in dry, disturbed sites" [A weed of dry sites that may contribute to fuel load, but probably not a significant fire risk relative to non-native grasses]
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	[Not listed among impacts] " <i>Cucumis dipsaceus</i> is an annual climbing herb native to Africa and the Arabian Peninsula that has become invasive in many regions around the world where it spread or was introduced. In Mexico, this species is possibly expanding and is classified as an invasive. In the Galapagos Islands <i>C. dipsaceus</i> has invaded a large area and is affecting the natural ecosystem by altering community composition and threatening native species."

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	NC State Extension. (2023). <i>Cucumis dipsaceus</i> . https://plants.ces.ncsu.edu/plants/cucumis-dipsaceus/ . [Accessed]	"Light: Full sun (6 or more hours of direct sunlight a day):
	The National Gardening Association. (2023). Hedgehog (<i>Cucumis dipsaceus</i>). https://garden.org/plants/view/144411/Hedgehog-Cucumis-dipsaceus/ . [Accessed 4 Nov 2023]	"Sun Requirements: Full Sun to Partial Shade"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	Notes
	The National Gardening Association. (2023). Hedgehog (<i>Cucumis dipsaceus</i>). https://garden.org/plants/view/144411/Hedgehog-Cucumis-dipsaceus/ . [Accessed 4 Nov 2023]	"Soil pH Preferences: Slightly acid (6.1 - 6.5) Neutral (6.6 - 7.3) Slightly alkaline (7.4 - 7.8)"
	NC State Extension. (2023). <i>Cucumis dipsaceus</i> . https://plants.ces.ncsu.edu/plants/cucumis-dipsaceus/ . [Accessed 4 Nov 2023]	"The plant grows best in full sun, in well-drained soil, and prefers a dry site."
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	"The plants prefer a sunny position in a well-drained soil. (Useful Tropical Plants, 2017). It cannot tolerate temperatures below 1°C. In Maharashtra, India, scattered populations of this species were found growing on gravelly, well aerated soil in somewhat dry conditions (Rahangdale and Rahangdale, 2016). In Kenya it grows on alluvial and sandy soils but also found in clay soils at elevations 425-1800 m (Maundu, 1999)."

411	Climbing or smothering growth habit	y
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Herbaceous vine, creeping or climbing by axillary tendrils, which attains 1.5 m in length. Stems much branched, slender, angular, sulcate, hispid on the angular margins; tendrils simple, longer than the leaves."

Qsn #	Question	Answer
412	Forms dense thickets	n
	Source(s)	Notes
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	" <i>Cucumis dipsaceus</i> can grow over other plants, smothering them" [An annual vine that does not form dense stands]
501	Aquatic	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Terrestrial] "Native to eastern Africa; in Hawai'i widely naturalized in dry, disturbed sites, 0-400 m"
502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2023). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 2 Nov 2023]	" "Genus: <i>Cucumis</i> Subgenus: <i>Cucumis</i> Section: <i>Aculeatosi</i> Family: Cucurbitaceae Tribe: Benincaseae"
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	Cucurbitaceae
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Kirkbride, J. H. (1993). Biosystematic Monograph of the Genus <i>Cucumis</i> (Cucurbitaceae): Botanical Identification of Cucumbers and Melons. Parkway Publishers, Boone, NC	"Plants: Herbs; annual; without a woody rootstock; lacking tubers; monoecious."
	Flora of North America. (2023). <i>Cucumis dipsaceus</i> . http://dev.semanticfna.org/Cucumis_dipsaceus . [Accessed 2 Nov 2023]	"Plants: roots thin, without thick, woody rootstock."
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Kirkbride, J. H. (1993). Biosystematic Monograph of the Genus <i>Cucumis</i> (Cucurbitaceae): Botanical Identification of Cucumbers and Melons. Parkway Publishers, Boone, NC	[No evidence] "Distribution: Africa: Ethiopia, Kenya, Somalia, Tanzania, Uganda, and possibly native to Sudan and southern Egypt. Introduced: widely adventive in the tropics."
602	Produces viable seed	y

Qsn #	Question	Answer
	Source(s)	Notes
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	" <i>Cucumis dipsaceus</i> is seed propagated. Bees and insects are reported as pollinators"
	Haselwood, E.L., Motter, G.G., & Hirano, R.T. (eds.). (1983). <i>Handbook of Hawaiian Weeds</i> . University of Hawaii Press, Honolulu, HI	"Propagation: By seed."
	NC State Extension. (2023). <i>Cucumis dipsaceus</i> . https://plants.ces.ncsu.edu/plants/cucumis-dipsaceus/ . [Accessed 4 Nov 2023]	"Recommended Propagation Strategy: Seed"

603	Hybridizes naturally	
	Source(s)	Notes
	Kirkbride, J. H. (1993). <i>Biosystematic Monograph of the Genus Cucumis (Cucurbitaceae): Botanical Identification of Cucumbers and Melons</i> . Parkway Publishers, Boone, NC	"Evidence from chromosome pairing and pollen fertility of hybrids shows that <i>C. dipsaceus</i> is closest to <i>C. prophetarum</i> and <i>C. zeyheri</i> (Singh and Yadava, 1984)."
	Deakin, J. R., Bohn, G. W., & Whitaker, T. W. (1971). Interspecific hybridization in <i>Cucumis</i> . <i>Economic Botany</i> , 25(2): 195-211	[Artificial hybrids possible] "In addition to the crosses with <i>Cucumis anguria</i> mentioned above, <i>C. dipsaceus</i> was successfully crossed with <i>C. africanus</i> , <i>C. ficifolius</i> , and <i>C. zeyheri</i> . It set fruits lacking plump seeds from crosses with <i>C. leptodermis</i> , <i>C. myriocarpus</i> , <i>C. melo</i> , and <i>C. prophetarum</i> . <i>C. dipsaceus</i> failed to set fruits from cross-pollinations with <i>C. heptadactylus</i> , <i>C. dinteri</i> , <i>C. metuliferus</i> , <i>C. hardwickii</i> , and <i>C. sativus</i> ."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Wehner, T. C., Naegele, R. P., Myers, J. R., Narinder, P. S., & Crosby, K. (2020). <i>Cucurbits</i> . 2nd Edition. CABI, Wallingford, UK	"Cucurbits are self-compatible. Reports of self-incompatibility in squash have been proved to be spurious. Most monoecious cucurbits are naturally self- as well as cross-pollinating. The bisexual flowers of andromonoecious melon and cucumber plants seldom set fruit if not mechanically pollinated. Although they are self-compatible and will set fruit if self-pollinated, they normally require the assistance of a pollinator because pollen is shed towards the outside of the flower, away from the centrally located stigma. When pollinated by insects, hermaphrodite flowers generally have a higher rate of successful self-pollination than do pistillate flowers."
	Kirkbride, J. H. (1993). <i>Biosystematic Monograph of the Genus Cucumis (Cucurbitaceae): Botanical Identification of Cucumbers and Melons</i> . Parkway Publishers, Boone, NC	"monoecious"
	Chen, J.F., & Adelberg, J. (2000). Interspecific hybridization in <i>Cucumis</i> -progress, problems, and perspectives. <i>HortScience</i> , 35(1): 11-15	[Self-fertility documented in <i>Cucumis</i> species] "Fig. 7. Polygon of crossability in <i>Cucumis</i> species (modified from Nijs and Visser, 1985). Arrows point to the female parent. Moderately to strongly self-fertile and cross-fertile hybrids (thick solid line); sparingly self-fertile and moderately cross-fertile hybrids (thin solid line); self-fertile, usually not cross-fertile hybrids (dashed and dotted line); inviable seeds or seedlings (dashed line); self-sterile and cross-sterile hybrids (thick dashed line); self-sterile and cross-fertile hybrids (long dashed line). Absence of a line indicates that seeded fruits were not obtained; question mark means that the information needs to be confirmed."

605	Requires specialist pollinators	n
	Source(s)	Notes

Qsn #	Question	Answer
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	"Bees and insects are reported as pollinators"
606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	[No evidence] " <i>Cucumis dipsaceus</i> is seed propagated." ... " <i>Cucumis dipsaceus</i> is a short lived annual."
607	Minimum generative time (years)	1
	Source(s)	Notes
	Kirkbride, J. H. (1993). <i>Biosystematic Monograph of the Genus Cucumis (Cucurbitaceae): Botanical Identification of Cucumbers and Melons</i> . Parkway Publishers, Boone, NC	"Plants: Herbs; annual; without a woody rootstock; lacking tubers; monoecious."
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Woodson, R. E., Schery, R. W., & Wunderlin, R. P. (1978). <i>Flora of Panama</i> . Part IX. Family 182. Cucurbitaceae. <i>Annals of the Missouri Botanical Garden</i> , 65(1), 285-366	"Neotropics, occurring in dry, disturbed thickets, old fields, and roadsides." [Occurrence along roadsides may facilitate accidental dispersal by vehicles, footwear or equipment]
702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 3 Nov 2023]	" <i>Cucumis dipsaceus</i> is native to Africa and the Arabian Peninsula, but now has a pantropical and subtropical distribution (Chandran et al., 2013). It has been naturalized in the New World from Texas to South America, including the Caribbean (Nee, 1993), and the Galapagos and Hawaii in the Pacific (PIER, 2017). It is spreading in dry tropical regions (Vibrans, 2017)."
	Kirkbride, J. H. (1993). <i>Biosystematic Monograph of the Genus Cucumis (Cucurbitaceae): Botanical Identification of Cucumbers and Melons</i> . Parkway Publishers, Boone, NC	"Distribution: Africa: Ethiopia, Kenya, Somalia, Tanzania, Uganda, and possibly native to Sudan and southern Egypt. Introduced: widely adventive in the tropics."
	Haselwood, E.L., Motter, G.G., & Hirano, R.T. (eds.). (1983). <i>Handbook of Hawaiian Weeds</i> . University of Hawaii Press, Honolulu, HI	"Introduced to Hawaii for its curious fruit."
703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	[A weed and potential seed contaminant of other crops, although unable to corroborate with concrete evidence] "Major Pathway/s: Contaminant, Crop, Herbal, Ornamental Dispersed by: Humans"
704	Propagules adapted to wind dispersal	n

Qsn #	Question	Answer
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Fruit yellow, subglobose to ellipsoid, 2-7 cm long, 1.5-3.5 cm in diameter, densely and softly spiny or bristly, spines slender, 3-8 mm long, pulp green. Seeds very pale brown, 3-5 mm long."
705	Propagules water dispersed	n
	Source(s)	Notes
	Woodson, R. E., Schery, R. W., & Wunderlin, R. P. (1978). Flora of Panama. Part IX. Family 182. Cucurbitaceae. Annals of the Missouri Botanical Garden, 65(1), 285-366	[No evidence. Typically a weed of dry, non-riparian areas] "Fruit pale yellow, ovoid cylindrical 3-8 cm long, 2-5 cm in diameter, densely spiny; seeds pale brown, oblong, compressed, 4.0-5.0 mm long, 2 mm wide." ... "occurring in dry, disturbed thickets, old fields, and roadsides."
706	Propagules bird dispersed	y
	Source(s)	Notes
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	" <i>Cucumis dipsaceus</i> seeds can be dispersed by birds (Itow, 2003)."
	WRA Specialist. (2023). Personal Communication	Ground foraging game birds may facilitate seed dispersal in the Hawaiian Islands.
707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Bristles on fruit non-adhesive] "Fruit yellow, subglobose to ellipsoid, 2-7 cm long, 1.5-3.5 cm in diameter, densely and softly spiny or bristly, spines slender, 3-8 mm long, pulp green. Seeds very pale brown, 3-5 mm long."
708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Dube, S. (2017). <i>Cucumis dipsaceus</i> (hedgehog gourd). CABI Compendium. https://doi.org/10.1079/cabicompendium.31694 . [Accessed 4 Nov 2023]	" <i>Cucumis dipsaceus</i> seeds can be dispersed by birds"
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"fruit liked by donkeys, pulp eaten by squirrels"
	WRA Specialist. (2023). Personal Communication	Feral pigs or other ungulates might also contribute to seed dispersal
801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Densities unknown] "Fruit yellow, subglobose to ellipsoid, 2-7 cm long, 1.5-3.5 cm in diameter, densely and softly spiny or bristly, spines slender, 3-8 mm long, pulp green. Seeds very pale brown, 3-5 mm long."

Qsn #	Question	Answer
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Rodríguez-Arévalo, I., Mattana, E., García, L., Liu, U., Lira, R., Dávila, P., ... & Ulián, T. (2017). Conserving seeds of useful wild plants in Mexico: main issues and recommendations. <i>Genetic Resources and Crop Evolution</i> , 64, 1141-1190	[Seeds classified as non-dormant. Longevity in soil unknown] "About 51 % of the investigated species showed Dormancy Index values lower than 0.4 (i.e. non dormant)" [Cucumis dipsaceus - Dormancy Index (DI) = 0.1]

803	Well controlled by herbicides	
	Source(s)	Notes
	Rehbein, C.A. (1960). Prickly cucumber control. <i>Cane Growers' Quarterly Bulletin</i> , 24: 10-12	[Herbicide effective at controlling related species] "The following treatments were applied with a knapsack spray to African or prickly cucumber (<i>Cucumis metuliferus</i>) growing in sugar cane: (1) 2, 4, 5-T 80% w/v as butyl ester at 1.0 and 0.5 pints/ac in 100 gal water, (2) 2, 4-D 17.8% w/v as ethyl ester + 2, 4, 5-T 16.4%, w/v as butyl ester at 6.67 pints/ac in 100 gal water, and (3) amitrole 50% a.i. at 18.75 and 12.5 pounds per acre. Two weeks after treatment, (1) and (2) had caused complete kill of cucumber. The higher rate of (3) caused death in some cases, but slightly injured the sugar cane; however, after 5 weeks, treatment (3) had also eliminated the cucumber. It was concluded that treatment (1) at 0.5 pounds per acre would give rapid control of cucumber at a cost of approximately 1/ac for material, treatment (2) gave slower control at approximately the same cost; and (3) was too expensive to be satisfactory."
	Shaik, R. S., Burrows, G. E., Urwin, N. A., Gopurenko, D., Lepschi, B. J., & Weston, L. A. (2017). The biology and management of prickly paddy melon (<i>Cucumis myriocarpus</i> L.), an important summer annual weed in Australia. <i>Crop Protection</i> , 92, 29-40	[Possibly. Herbicides may be effective at controlling the congener <i>Cucumis myriocarpus</i>] "Post-emergent herbicide applications are more effective on younger seedlings than mature plants (Johnson, 2007). <i>Cucumis myriocarpus</i> tolerance to glyphosate, metsulfuron p glyphosate and 2,4 D ester has also been observed (Leys et al., 1990). Attempts to control <i>Cucumis myriocarpus</i> in Australia using glyphosate have not been entirely successful, as management occurs mainly at the seedling stage in populations that have not developed tolerance to herbicides (Johnson, 2007). Adding phenoxy herbicides such as 2,4 D and its derivatives generally improves efficacy of control compared to glyphosate alone (Parsons and Cuthbertson, 2001). In fallow, glyphosate plus triclopyr has been registered for the control of <i>Cucumis myriocarpus</i> in north east Australia (Annetts et al., 2002). Picloramtriclopyr tank mixture have also been adopted due to success in controlling <i>Cucumis myriocarpus</i> in northern Australia (Wells, 1999). Multiple herbicide sprays may also be needed to control recurring flushes of seedlings. An application of a recommended herbicide immediately after the winter crop harvest, followed by a fallow spray later was suggested for effective control (Johnson, 2007). In northern NSW and Queensland experiments were conducted on soils of various pH values ranging between 6 and 8. The study found that the higher soil pH, the longer <i>Cucumis myriocarpus</i> was controlled using a single application of chlorsulphuron (Pollock et al., 1984). This suggests the impact of soil pH on herbicide activity, in this case sulfonyly urea activity (Dick, 1992)."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	Kirkbride, J. H. (1993). <i>Biosystematic Monograph of the Genus Cucumis (Cucurbitaceae): Botanical Identification of Cucumbers and Melons</i> . Parkway Publishers, Boone, NC	"Plants: Herbs; annual; without a woody rootstock" [Unknown. Mechanical control might be effective because plants are annuals without a rootstock]

Qsn #	Question	Answer
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	<p style="text-align: center;">Source(s)</p> Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	<p style="text-align: center;">Notes</p> "in Hawai'i widely naturalized in dry, disturbed sites, 0-400 m, on all of the main" [Unknown. Natural enemies do not appear to be inhibiting establishment on all islands]

Summary of Risk Traits:

Cucumis dipsaceus (hedgehog cucumber, wild spiny cucumber) is an annual climbing herb native to tropical eastern Africa. The plant gets its common name from its distinctive fruit, which is a small, spiny cucumber-like berry. It has been used for fodder, medicine, and human consumption, and has been introduced to and naturalized in many tropical regions of the world, including the Americas, Australia, and Pacific Islands. It is now naturalized on all the main Hawaiian Islands, but is primarily a weed of low elevation, disturbed sites. Where established, it may compete with or smother other desirable vegetation and may host pathogens of other cultivated crops.

High Risk / Undesirable Traits

- Thrives and spreads in regions with tropical climates
- Naturalized on all of the main Hawaiian Islands, and elsewhere in the tropics
- A common weed of dry disturbed sites, pastures, rangelands, old fields and roadsides.
- A potential agricultural and environmental weed, although impacts have generally not been explicitly quantified.
- Other *Cucumis* species are invasive weeds
- An alternate host of Zucchini yellow mosaic potyvirus, an isolate of papaya ringspot potyvirus, and cucumber mosaic cucumovirus.
- Fruit may be poisonous under certain conditions.
- Smothering growth habit.
- Reproduces by seeds.
- Self-fertile.
- An annual, capable of reaching maturity in one growing season.
- Seeds reported to be dispersed by birds and other animals, potentially as a soil and crop contaminant, and through intentional cultivation.

Low Risk Traits

- Generally regarded as an innocuous weed of disturbed habitats, rather than a serious weed of crops or intact natural ecosystems.
- Unarmed (no spines, thorns, or burrs). "Spines" on fruit are not harmful.
- Leaves and fruits are used as a source of animal fodder.
- Reported to be non-toxic to most animals.
- Grows best in high light environments (dense shade may inhibit spread)

