

**Taxon:** Artocarpus camansi Blanco

**Family:** Moraceae

**Common Name(s):** breadnut  
châtaignier

**Synonym(s):**

**Assessor:** Chuck Chimera

**Status:** Assessor Approved

**End Date:** 22 Sep 2017

**WRA Score:** 0.0

**Designation:** L

**Rating:** Low Risk

**Keywords:** Tropical Tree, Edible Fruit/Seeds, Shade-Tolerant, Self-Fertile, Zoochorous

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		
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	y=1, n=0	n
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	n
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

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	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	n
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
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		
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m <sup>2</sup> )	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
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
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	" <i>Artocarpus camansi</i> has often been considered to be a form of seeded breadfruit, <i>A. altilis</i> . Breadfruit, however, is a separate species that originated from its wild seeded ancestor, breadnut. Pacific islanders did not distribute it through the region, probably because the seeds are short-lived and would be difficult to transport long distances."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA

201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 22 Sep 2017]	"Native: Asia-Tropical Malesia: Indonesia - Moluccas Papuasias: Indonesia - Irian Jaya; Papua New Guinea"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 22 Sep 2017]	

Qsn #	Question	Answer
203	<b>Broad climate suitability (environmental versatility)</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 3, Fruits. Springer, New York	[Can occupy an elevation range in excess of 1000 m in tropical regions, demonstrating some environmental versatility] "Breadnut, like breadfruit, has a wide range of adaptability to tropical ecological conditions and thrives well wherever breadfruit is grown. It will not grow where the temperatures go below 5°C with mean annual rainfall of 1,300–3,800 mm. It grows best in equatorial lowlands below 600–650 but also occur at elevations up to 1,550 m."

204	<b>Native or naturalized in regions with tropical or subtropical climates</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 3, Fruits. Springer, New York	"Breadnut is indigenous to New Guinea and Moluccas, and probably naturalized in the Philippines."
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). Traditional Trees of Pacific Islands: Their Culture, Environment, and Use. Permanent Agriculture Resources (PAR), Holualoa, HI	"This wild seeded ancestor of breadfruit ( <i>Artocarpus altilis</i> ) is native to New Guinea and possibly the Moluccas (Indonesia) and the Philippines."

205	<b>Does the species have a history of repeated introductions outside its natural range?</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 3, Fruits. Springer, New York	"Cultivated in Indonesia, Malaysia, the Caribbean Islands, Pacific Islands, tropical Central and South America, and coastal West Africa. It is now found only in cultivation in the Philippines, where it is typically grown as a backyard tree. It is infrequently grown in the Pacific islands outside of its native range. A few trees can be found in New Caledonia, Pohnpei, the Marquesas, Tahiti, Palau, and Hawa'ii, mainly introduced by immigrants from the Philippines."

301	<b>Naturalized beyond native range</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). Traditional Trees of Pacific Islands: Their Culture, Environment, and Use. Permanent Agriculture Resources (PAR), Holualoa, HI	[In contrast to Zerega et al. (2005), which claims it is probably naturalized] "It is now found only in cultivation in the Philippines, where it is typically grown as a backyard tree."

Qsn #	Question	Answer
	Zerega, N., Ragone, D., & Motley, T. (2005). Systematics and Species Limits of Breadfruit ( <i>Artocarpus</i> , Moraceae). Systematic Botany, 30(3), 603-615	[Probably naturalized in the Philippines] " <i>Artocarpus camansi</i> is indigenous to New Guinea where it is common in the lowlands and grows in flooded riverbanks, secondary and primary growth forest, freshwater swamps, and in cultivation (Jarrett 1959b). It may also be indigenous to the Moluccas (Rumphius 1741) and possibly the Philippines (Quisumbing 1940). However, it may have been introduced and naturalized in the Philippines during the 1600s (Jarret 1959b; Zerega et al. 2004)." ... "Distribution. Native to New Guinea and Moluccas, probably naturalized in the Philippines. Cultivated in Indonesia, Malaysia, the Caribbean Islands, tropical Central and South America, and coastal West Africa."

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
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). Traditional Trees of Pacific Islands: Their Culture, Environment, and Use. Permanent Agriculture Resources (PAR), Holualoa, HI	"Invasive potential It has little potential for invasiveness."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Several species are cited as naturalized or weeds of unspecified impacts. Unable to confirm detrimental impacts

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

Qsn #	Question	Answer
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 3, Fruits. Springer, New York	[No evidence] "Evergreen perennial tree grows to height of 10–20 m with a bole diameter of 1 m and a trunk growing to 5 m high before branching (Plate 1) and buttresses at the base. It has a more open branching structure than breadfruit ( <i>Artocarpus altilis</i> ) or dugdug ( <i>A. mariannensis</i> ). A sticky, white, milky latex is present in all parts of the tree. Leaves are alternate, large, 40–60 cm long by 25–45 cm wide leathery, ovate to oblongovate typically pinnately lobed with 4–6 pairs of lobes and sinuses cut half way to the midrib (Plate 2). Juvenile leaves may be larger. Leaves are densely pubescent, with many white or reddish- white hairs on upper and lower veins, lower leaf surface, and petiole. Lamina is dull green with green veins."

402	Allelopathic	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[No evidence] "It is associated with banana ( <i>Musa</i> spp.), coconut ( <i>Cocos nucifera</i> ), Indian mulberry ( <i>Morinda citrifolia</i> , noni), sugarcane, ornamental plants, and other common homegarden species."

403	Parasitic	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"It is a single-trunked tree with a spreading evergreen canopy. The tree typically forms buttresses at the base of the trunk." [Moraceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"All parts—flesh, peel, core, and seeds—of both mature and ripe fruits are edible and are fed to pigs and other livestock."
	Orwa C., Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 <i>Agroforestry Database: a tree reference and selection guide</i> version 4.0. <a href="http://www.worldagroforestry.org">http://www.worldagroforestry.org</a> . [Accessed 22 Sep 2017]	"Mulching is necessary for the young plants and need to be protected from cattle, goats, horses, and pigs, which eat the bark and tender shoots."

405	Toxic to animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"All parts—flesh, peel, core, and seeds—of both mature and ripe fruits are edible and are fed to pigs and other livestock." [No evidence] ... "Toxin/insecticide/fish poison Dried male flowers can be burned to repel mosquitoes and other flying insects."
	Orwa C., Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 <i>Agroforestry Database: a tree reference and selection guide version 4.0</i> . <a href="http://www.worldagroforestry.org">http://www.worldagroforestry.org</a> . [Accessed 22 Sep 2017]	"Mulching is necessary for the young plants and need to be protected from cattle, goats, horses, and pigs, which eat the bark and tender shoots." [No evidence of toxicity]
	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

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Orwa C., Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 <i>Agroforestry Database: a tree reference and selection guide version 4.0</i> . <a href="http://www.worldagroforestry.org">http://www.worldagroforestry.org</a> . [Accessed ]	"Breadnut has few serious diseases or pests with low susceptibility to fruit rots caused by <i>Phytophthora</i> , <i>Colletotrichum</i> (anthracnose), and <i>Rhizopus</i> . Fruit flies are attracted to ripe fruits on the trees and ground."
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"Susceptibility to pests/pathogens It has few serious diseases or pests and is relatively troublefree, with disease and pest problems localized. Breadnut does not appear to be as susceptible as breadfruit to fruit rots caused by <i>Phytophthora</i> , <i>Colletotrichum</i> (anthracnose), and <i>Rhizopus</i> . Host to crop pests/pathogens Fruit flies are attracted to ripe fruits on the trees and ground and infest many fruit and vegetable crops."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[No evidence] "Staple food The nutritious fruits are usually consumed when immature, thinly sliced and boiled as a vegetable in soups or stews." ... "Breadnut is primarily grown for its nutritious seeds; it is a good source of protein and low in fat compared to nuts such as almond, brazil nut, and macadamia nut." ... "No specific medicinal uses are reported, but the breadnut tree probably has medicinal properties similar to breadfruit."
	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

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes

Qsn #	Question	Answer
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"Grows best in equatorial lowlands below 600–650 m (1970–2130 ft) and rainfall of 1300–3800 mm (50–150 in) but is widely adaptable." ... "Breadnut ( <i>Artocarpus camansi</i> ) is native to New Guinea and possibly the Moluccas (Indonesia) and the Philippines. In New Guinea, it is a dominant member of alluvial forests in lowland areas and is one of the first species to appear on the tops of frequently flooded banks of rivers." [No evidence. Not known to occur in fire prone habitats]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Lim, T.K. (2012). <i>Edible Medicinal and Non-Medicinal Plants</i> . Volume 3, Fruits. Springer, New York	"The tree prefers light, well-drained soils (sands, sandy loams, loams, and sandy clay loams) with pH of 6–7.5 and in full sun."
	Roberts-Nkrumah, L. B. 2015. <i>Breadfruit and Breadnut Orchard Establishment and Management: A manual for commercial production</i> . FAO, Rome	"This is also an important requirement for good growth. Light shade is useful to prevent wilting, stunting and possible death of newly planted trees because the large leaves lose moisture rapidly but the root system is not sufficiently developed to absorb adequate quantities of water. The trees compete strongly for light, by growing quickly to produce a tall, trunk with high branches. Therefore, the trees should be exposed to full sunlight to encourage a lower canopy to develop."
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[Young plants tolerate partial shade] "Does best in full sun." ... "Young plants prefer partial shade. If they are to be planted in full sun, gradually move them to full-sun conditions in the nursery for 1–2 months to harden them to the site conditions. Young plants should never be allowed to dry out or be exposed to strong wind."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Roberts-Nkrumah, L. B. 2015. <i>Breadfruit and Breadnut Orchard Establishment and Management: A manual for commercial production</i> . FAO, Rome	"Breadfruit and breadnut trees can grow on a wide range of soil types but they prefer sufficiently deep, well-drained and moisture retentive soils. Soils that are prone to waterlogging or seriously eroded and shallow should be avoided. The soils should have fairly high organic matter content, adequate nutrient status and a pH of 6 to 6.5."
	Lim, T.K. (2012). <i>Edible Medicinal and Non-Medicinal Plants</i> . Volume 3, Fruits. Springer, New York	"The tree prefers light, well-drained soils (sands, sandy loams, loams, and sandy clay loams) with pH of 6–7.5 and in full sun."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"It is a single-trunked tree with a spreading evergreen canopy. The tree typically forms buttresses at the base of the trunk."



Qsn #	Question	Answer
412	<b>Forms dense thickets</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[No evidence] "Breadnut ( <i>Artocarpus camansi</i> ) is native to New Guinea and possibly the Moluccas (Indonesia) and the Philippines. In New Guinea, it is a dominant member of alluvial forests in lowland areas and is one of the first species to appear on the tops of frequently flooded banks of rivers. The trees grow widely scattered in the forest and are dispersed by birds, flying foxes, and arboreal mammals that feed on the flesh and drop the large seeds."

501	<b>Aquatic</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[Terrestrial] "Medium tree 15 m (50 ft) or more in height at maturity." ... "In native range, an important component of the vegetation associated with lowland mixed alluvial forests; in cultivation, associated with a wide variety of domesticated plants."

502	<b>Grass</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 22 Sep 2017]	Family: Moraceae Tribe: Artocarpeae

503	<b>Nitrogen fixing woody plant</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 22 Sep 2017]	Family: Moraceae Tribe: Artocarpeae

504	<b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"Trees grow to heights of 10–15 m (33–50 ft) or taller with a trunk 1 m (3.3 ft) or larger in diameter, often growing to a height of 5 m (16 ft) before branching. A sticky, white, milky latex is present in all parts of the tree. Canopy diameter generally measures about half of the tree height."

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

Qsn #	Question	Answer
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[No evidence] "This wild seeded ancestor of breadfruit ( <i>Artocarpus altilis</i> ) is native to New Guinea and possibly the Moluccas (Indonesia) and the Philippines. It is distributed throughout its natural range by flying foxes (fruit bats) and arboreal mammals." ... "Breadnut is widespread throughout the lowlands of New Guinea where it occurs naturally, and it is also found in cultivation in homegardens. It is now found only in cultivation in the Philippines, where it is typically grown as a backyard tree. It is infrequently grown in the Pacific islands outside of its native range. A few trees can be found in New Caledonia, Pohnpei, the Marquesas, Tahiti, Palau, and Hawai'i, mainly introduced by immigrants from the Philippines in recent years. It is currently not found on any of the Pacific atolls."

602	Produces viable seed	y
	Source(s)	Notes
	Lim, T.K. (2012). <i>Edible Medicinal and Non-Medicinal Plants</i> . Volume 3, Fruits. Springer, New York	"The tree is propagated from seeds."
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"This species is grown for its seeds, and there is much variation in seed number, size, and nutritional composition." ... "The seeds have little to no endosperm, no period of dormancy, germinate immediately, and are unable to withstand desiccation." ... "Breadnut is easily propagated by seeds."

603	Hybridizes naturally	n
	Source(s)	Notes
	Zerega, N., Ragone, D., & Motley, T. (2005). <i>Systematics and Species Limits of Breadfruit (Artocarpus, Moraceae)</i> . <i>Systematic Botany</i> , 30(3), 603-615	[Hybrids documented between other species of <i>Artocarpus</i> , but none for <i>A. camansi</i> , a well-studied species] "Hybrids between <i>A. altilis</i> and <i>A. mariannensis</i> also occur. Therefore, the treatment below recognizes three monophyletic apospecies, <i>A. camansi</i> , <i>A. mariannensis</i> , and <i>A. altilis</i> as well as natural <i>A. altilis</i> X <i>A. mariannensis</i> hybrids."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Roberts-Nkrumah, L. B. (2005). Fruit and seed yields in chataigne ( <i>Artocarpus camansi</i> Blanco) in Trinidad and Tobago. <i>Fruits</i> , 60(6), 387-393	"Self-pollination and cross-pollination, both wind- and insect-assisted, occur in chataigne"

605	Requires specialist pollinators	n
	Source(s)	Notes
	Roberts-Nkrumah, L. B. (2005). Fruit and seed yields in chataigne ( <i>Artocarpus camansi</i> Blanco) in Trinidad and Tobago. <i>Fruits</i> , 60(6), 387-393	"Bee hives and manual pollination might be effectively employed to increase seed yield in chataigne, as has been achieved with jackfruit"

Qsn #	Question	Answer
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"Honeybees visit male inflorescences and collect pollen and also collect latex that oozes from the fruit surface."
	Zerega, N., Ragone, D., and Motley, T. J. (2006). Breadfruit origins, diversity, and human-facilitated distribution. In Motley, T. J., Zerega, N., and Cross, H. (eds.), <i>Darwin's Harvest: New Approaches to the Origins, Evolution, and Conservation of Crops</i> , Columbia University Press, New York, pp. 213–238	"Little is known about pollination in seeded cultivars or wild relatives of breadfruit, although both wind (Jarrett, 1959a) and insect pollination (Brantjes, 1981; Momose et al., 1998; Sakai et al., 2000) have been suggested for various <i>Artocarpus</i> species."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"Breadnut is easily propagated by seeds. The trees do not produce root shoots and cannot be grown from root cuttings as can breadfruit."

607	Minimum generative time (years)	>3
	Source(s)	Notes
	Hawaiian Tropical Plant Nursery. 2017. <i>Edible Plants</i> . <a href="http://www.hawaiiantropicalplants.com/fruit.html">http://www.hawaiiantropicalplants.com/fruit.html</a> . [Accessed 22 Sep 2017]	[4-6 years] " <i>Artocarpus camansi</i> - Family: Moraceae. Common Name: Breadnut. Large seeds are cooked and eaten. Mature fruits are about 6 inches in diameter. Nice nutty flavor similar to fresh boiled peanuts. Young fruits can be cooked and eaten as well. Large attractively lobed leaves like breadfruit trees. Cultivated in warm lowland tropical rain forest throughout the pacific Basin. Growth is fast and trees can begin to bear in 4 to 6 years. "
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[8-10 years] "Fruiting season is October to May, with some fruits available into July in Hawai'i. It begins in April or May in the Philippines. Trees begin producing at 8–10 years of age."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[Large seeds lack means of external attachment] "The seeds are rounded or flattened by compression and about 2.5 cm (1 in) long. They have a thin, light-brown outer seed coat that is patterned with darker veins." ... "Typically spread by flying foxes and arboreal mammals."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes

Qsn #	Question	Answer
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"Beginning in the late 1700s the British and French spread breadnut throughout the tropics, and it is now widespread in the Caribbean—where it is especially popular in Trinidad, Tobago, and Guyana—Central and South America, Southeast Asia, and parts of Africa, especially coastal West Africa."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[No evidence. Seeds large & lack dormancy] "The fruit is a large fleshy syncarp, oval or ovoid, 13–20 cm (5–8 in) long and 7–12 cm (2.6–4.8 in) in diameter, weighing approximately 800 g (1.8 lb)." ... "The seeds are rounded or flattened by compression and about 2.5 cm (1 in) long. They have a thin, light-brown outer seed coat that is patterned with darker veins." ... "The seeds have little to no endosperm, no period of dormancy, germinate immediately, and are unable to withstand desiccation." ... "Typically spread by flying foxes and arboreal mammals."

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"The fruit is a large fleshy syncarp, oval or ovoid, 13–20 cm (5–8 in) long and 7–12 cm (2.6–4.8 in) in diameter, weighing approximately 800 g (1.8 lb)." ... "The seeds are rounded or flattened by compression and about 2.5 cm (1 in) long. They have a thin, light-brown outer seed coat that is patterned with darker veins." ... "Typically spread by flying foxes and arboreal mammals."

705	Propagules water dispersed	
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"The wild breadnut tree is one of the first trees to appear on the tops of frequently flooded, low levee banks." [Suggests fruit and seeds are dispersed by water, in addition to flying foxes and other mammals]

706	Propagules bird dispersed	y
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[Dispersed by birds & flying foxes, but seeds may be too large for most birds in Hawaiian Islands] "The trees grow widely scattered in the forest and are dispersed by birds, flying foxes, and arboreal mammals that feed on the flesh and drop the large seeds." ... "The seeds are rounded or flattened by compression and about 2.5 cm (1 in) long."

707	Propagules dispersed by other animals (externally)	

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"The trees grow widely scattered in the forest and are dispersed by birds, flying foxes, and arboreal mammals that feed on the flesh and drop the large seeds." [Possibly externally carried by animals large enough to carry fruit & seeds]

708	Propagules survive passage through the gut	
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"This species has little potential for invasiveness because the large, fleshy seeds quickly lose viability and are not readily spread except by flying foxes." [Possibly, although flying foxes more likely to spit out seeds, rather than consume and defecate]

801	Prolific seed production (>1000/m <sup>2</sup> )	n
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	[Could potentially produce large seed quantities in cultivation, but given large seed size, unlikely to reach high densities from isolated trees] "Mature breadnut trees in the Philippines have been reported to produce 600–800 fruits per season. The average number of seeds per fruit is variable, ranging from 32 to 94 per fruit, each seed weighing an average of 7.7–10 g (0.25– 0.33 oz). Based on 100 trees/ha (40 trees/ac) producing 200 fruits per tree, an average yield of 11 mt/ha (4.9 t/ac) of fresh seeds has been estimated."

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	<b>Source(s)</b>	<b>Notes</b>
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"This species is grown for its seeds, and there is much variation in seed number, size, and nutritional composition." ... "The seeds have little to no endosperm, no period of dormancy, germinate immediately, and are unable to withstand desiccation."

803	Well controlled by herbicides	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

Qsn #	Question	Answer
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Orwa C., Mutua, A., Kindt R., Jamnadass, R., & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. <a href="http://www.worldagroforestry.org">http://www.worldagroforestry.org</a> . [Accessed 22 Sep 2017]	"It can withstand strong winds and will re-sprout after sustaining wind damage."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Ragone, D. (2006). <i>Artocarpus camansi</i> (breadnut). Pp. 101- 110 In: Elevitch, C.R. (ed.). <i>Traditional Trees of Pacific Islands: Their Culture, Environment, and Use</i> . Permanent Agriculture Resources (PAR), Holualoa, HI	"Susceptibility to pests/pathogens It has few serious diseases or pests and is relatively troublefree, with disease and pest problems localized. Breadnut does not appear to be as susceptible as breadfruit to fruit rots caused by <i>Phytophthora</i> , <i>Colletotrichum</i> (anthracnose), and <i>Rhizopus</i> . Host to crop pests/pathogens Fruit flies are attracted to ripe fruits on the trees and ground and infest many fruit and vegetable crops."

**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Thrives in tropical climates
- Possibly naturalized in Philippines (unclear)
- Seedlings and saplings tolerate shade
- Tolerates many soil types
- Reproduces by seeds
- Capable of self-pollination
- Seeds dispersed by birds, flying foxes, arboreal mammals & intentionally by people
- Able to resprout after damage from high winds

Low Risk Traits

- No reports of invasiveness or naturalization (with possible exception of Philippines)
- Unarmed (no spines, thorns, or burrs)
- Fruit & foliage palatable to animals
- Not reported to spread vegetatively
- Reaches maturity in 6-10 years
- Large seeds unlikely to be accidentally dispersed
- Seeds lose viability rapidly