

**Family:** *Clusiaceae*

**Taxon:** *Garcinia mangostana*

**Synonym:** **Common Name** king's fruit  
mangostan  
mangosteen

<b>Questionnaire :</b>	current 20090513	<b>Assessor:</b>	Patti Clifford	<b>Designation:</b> L(Hawai'i)
<b>Status:</b>	Assessor Approved	<b>Data Entry Person:</b>	Assessor	<b>WRA Score</b> -5
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		y=1, n=0	n
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0	y
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205	
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		n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs		y=1, n=0	n
402	Allelopathic		y=1, n=0	
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	
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
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	n
412	Forms dense thickets	y=1, n=0	
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	>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	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	n
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	n
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: L(Hawai'i)

WRA Score -5

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**Supporting Data:**

101	1995. Yaacob, O./Tindall, H.D.. Mangosteen Cultivation. Food and Agriculture Organization of the United Nations, Rome	"Although <i>Garcinia mangostana</i> has been in cultivation for centuries, there appear to be no distinct varieties of mangosteen in South-east Asia and there are no records of attempts being made to improve the basic species."
201	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland <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>	Thought to be native to Malaysia.
202	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland <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>	Thought to be native to Malaysia.
203	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	" <i>Garcinia mangostana</i> is ultra-tropical. It cannot tolerate temperatures below 40° F (4.44° C), nor above 100° F (37.78° C). Nursery seedlings are killed at 45° F (7.22° C). It is limited in Malaya to elevations below 1,500 ft (450 m). In Madras it grows from 250 to 5,000 ft (76-1,500 m) above sea-level. Attempts to establish it north of 20 degree latitude have all failed. It ordinarily requires high atmospheric humidity and an annual rainfall of at least 50 in (127 cm), and no long periods of drought. In Dominica, <i>Garcinia mangostana</i> growing in an area having 80 in (200 cm) of rain yearly required special care, but those in another locality with 105 in (255 cm) and soil with better moisture- holding capacity, flourished."
204	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland <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>	Thought to be native to Malaysia.
205	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	"The place of origin of the mangosteen is unknown but is believed to be the Sunda Islands and the Moluccas; still, there are wild trees in the forests of Kemaman, Malaya. Corner suggests that the tree may have been first domesticated in Thailand, or Burma. It is much cultivated in Thailand—where there were 9,700 acres (4,000 ha) in 1965—also in Kampuchea, southern Vietnam and Burma, throughout Malaya and Singapore. The tree was planted in Ceylon about 1800 and in India in 1881. There it succeeds in 4 limited areas—the Nilgiri Hills, the Tinnevely district of southern Madras, the Kanya-kumari district at the southernmost tip of the Madras peninsula, and in Kerala State in southwestern India. The tree is fairly common only in the provinces of Mindanao and Sulu (or Jolo) in the Philippines. It is rare in Queensland, where it has been tried many times since 1854, and poorly represented in tropical Africa (Zanzibar, Ghana, Gabon and Liberia). There were fruiting trees in greenhouses in England in 1855. The mangosteen was introduced into Trinidad from the Royal Botanic Garden at Kew, England, between 1850 and 1860 and the first fruit was borne in 1875. It reached the Panama Canal Zone and Puerto Rico in 1903 but there are only a few trees in these areas, in Jamaica, Dominica and Cuba, and some scattered around other parts of the West Indies. The United States Department of Agriculture received seeds from Java in 1906 (S.P.I. #17146). A large test block of productive trees has been maintained at the Lancetilla Experimental Station at Tela, Honduras, for many years. Quite a few trees distributed by the United Fruit Company long ago have done well on the Atlantic coast of Guatemala. In 1924, Dr. Wilson Popenoe saw the mangosteen growing at one site in Ecuador. In 1939, 15,000 seeds were distributed by the Canal Zone Experiment Gardens to many areas of tropical America. It is probable that only a relatively few seedlings survived. It is known that many die during the first year. Dr. Victor Patiño has observed flourishing mangosteen trees at the site of an old mining settlement in Mariquita, Colombia, in the Magdalena Valley and the fruits are sold on local markets. Dierberger Agricola Ltda., of Sao Paulo, included the mangosteen in their nursery catalog in 1949."
301	2010. WRA Specialist. Personal Communication.	The Global Compendium of Weeds indicates that <i>Garcinia</i> has naturalized in Costa Rica and Pohnpei. However, I can't find the literature to confirm this.
302	2007. Randall, R.P.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence of control or impact as a disturbance weed.
303	2007. Randall, R.P.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence.

304	2007. Randall, R.P.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	No evidence.
305	2010. WRA Specialist. Personal Communication.	No evidence of control or impact of a congeneric weed.
401	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	No spines, thorns, or burrs.
402	2010. WRA Specialist. Personal Communication.	Unknown.
403	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	Not parasitic.
404	2010. WRA Specialist. Personal Communication.	Unknown.
405	2010. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland <a href="http://www.ncbi.nlm.nih.gov/sites/entrez">http://www.ncbi.nlm.nih.gov/sites/entrez</a>	No evidence in PubMed.
405	2010. Specialized Information Services, U.S. National Library of Medicine. TOXNET Toxicology Data Network [Online Database]. National Institutes of Health, <a href="http://toxnet.nlm.nih.gov/">http://toxnet.nlm.nih.gov/</a>	No evidence of toxicity in ToxNet.
406	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	"Few pests have been reported. A leaf-eating caterpillar in India may perhaps be the same as that which attacks new shoots in the Philippines and which has been identified as <i>Orgyra</i> sp. of the tussock moth family, Lymantridae. A small ant, <i>Myrmelachista ramulorum</i> , in Puerto Rico, colonizes the tree, tunnels into the trunk and branches, and damages the new growth. Mites sometimes deface the fruits with small bites and scratches. In Puerto Rico, thread blight caused by the fungus, <i>Pellicularia koleroga</i> , is often seen on branchlets, foliage and fruits of trees in shaded, humid areas. The fruits may become coated with webbing and ruined. In Malaya, the fungus, <i>Zignoella garcineae</i> , gives rise to "canker"—tuberous growths on the branches, causing a fatal dying-back of foliage, branches and eventually the entire tree. Breakdown in storage is caused by the fungi <i>Diplodia gossypina</i> , <i>Pestalotia</i> sp., <i>Phomopsis</i> sp., <i>Gloeosporium</i> sp., and <i>Rhizopus nigricans</i> ."
407	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	Dried fruits are shipped from Singapore to Calcutta and to China for medicinal use. The sliced and dried rind is powdered and administered to overcome dysentery. Made into an ointment, it is applied on eczema and other skin disorders. The rind decoction is taken to relieve diarrhea and cystitis, gonorrhea and gleet and is applied externally as an astringent lotion. A portion of the rind is steeped in water overnight and the infusion given as a remedy for chronic diarrhea in adults and children. Filipinos employ a decoction of the leaves and bark as a febrifuge and to treat thrush, diarrhea, dysentery and urinary disorders. In Malaya, an infusion of the leaves, combined with unripe banana and a little benzoin is applied to the wound of circumcision. A root decoction is taken to regulate menstruation. A bark extract called "ambiasine", has been marketed for the treatment of amoebic dysentery.
408	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	No evidence.
409	2009. Diczbalis, Y.. Farm and forestry production and marketing profile for mangosteen ( <i>Garcinia mangostana</i> ). Permanent Agriculture Resources (PAR), Hualaloa <a href="http://www.agroforestry.net/scps/Mangosteen_specialty_crop.pdf">http://www.agroforestry.net/scps/Mangosteen_specialty_crop.pdf</a>	"Young seedlings prefer a high level of shade and young trees prefer moderate shade. Mature trees provided with adequate moisture and nutrients will grow, flower, and fruit in full sun if humidity remains high. Weibel et al (1993) report that maximum photosynthesis in mangosteen occurs at low light levels similar to that observed in understory rainforest trees."
410	1987. Morton, J.. Fruits of warm climates - Mangosteen. " <a href="http://www.hort.purdue.edu/newcrop/morton/mangosteen.html">http://www.hort.purdue.edu/newcrop/morton/mangosteen.html</a>	"The tree is not adapted to limestone and does best in deep, rich organic soil, especially sandy loam or laterite. In India, the most productive specimens are on clay containing much coarse material and a little silt. Sandy alluvial soils are unsuitable and sand low in humus contributes to low yields."

410	2009. Diczbalis, Y.. Farm and forestry production and marketing profile for mangosteen ( <i>Garcinia mangostana</i> ).. Permanent Agriculture Resources (PAR), Houlualoa <a href="http://www.agroforestry.net/scps/Mangosteen_specialty_crop.pdf">http://www.agroforestry.net/scps/Mangosteen_specialty_crop.pdf</a>	"Mangosteen prefers deep, well-drained soils with good moisture retention. The tree grows well on deep river loams. Soils should be high in organic matter. It has been observed to perform poorly on sandy soils low in organic matter. In North Queensland, trees have been grown on soils with a pH range of 4.8–7.6 and 1.5–7.9% organic matter."
411	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/mangosteen.html"	A tree.
412	2010. WRA Specialist. Personal Communication.	Unknown.
501	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/mangosteen.html"	Terrestrial.
502	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/mangosteen.html"	Clusiaceae.
503	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/mangosteen.html"	Cluseaceae.
504	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/mangosteen.html"	Tree.
601	2010. WRA Specialist. Personal Communication.	No evidence.
602	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/mangosteen.html"	"Technically, the so-called "seeds" are not true seeds but adventitious embryos, or hypocotyl tubercles, inasmuch as there has been no sexual fertilization. When growth begins, a shoot emerges from one end of the seed and a root from the other end. But this root is short-lived and is replaced by roots which develop at the base of the shoot. The process of reproduction being vegetative, there is naturally little variation in the resulting trees and their fruits."
603	2004. Ramage, C.M./Sando, L./Peace, C.P./Carroll, B.J./Drew, R.A.. Genetic diversity revealed in the apomictic fruit species <i>Garcinia mangostana</i> L. (mangosteen). <i>Euphytica</i> . 136: 1-10.	"It has been suggested that mangosteen, a ployploid ( $2n = \approx 90$ ), arose as an amphidiploid from an interspecific cross between two indigenous Malaysian species <i>G. hombroniana</i> ( $2n = 48$ ) and <i>G. malaccensis</i> ( $2n = \approx 42$ ). This resulted in a single female possessing the trait of adventitious embryony that has since reproduced asexually. The creation of all-female populations is not unusual in interspecific hybrids."
604	2004. Ramage, C.M./Sando, L./Peace, C.P./Carroll, B.J./Drew, R.A.. Genetic diversity revealed in the apomictic fruit species <i>Garcinia mangostana</i> L. (mangosteen). <i>Euphytica</i> . 136: 1-10.	<i>Garcinia mangostana</i> is an apomictic species.
605	2006. SOC. Mangosteen <i>Garcinia mangostana</i> , field manual for extension workers and farmers. ICUC, Southampton <a href="http://www.icuc-iwmi.org/files/Publications/Mangosteen_Manual.pdf">http://www.icuc-iwmi.org/files/Publications/Mangosteen_Manual.pdf</a>	The seed of mangosteen bears a non-sexual embryo, hence it is true-to-type. Unlike other seeds, it develops even in the absence of pollination.
606	2006. SOC. Mangosteen <i>Garcinia mangostana</i> , field manual for extension workers and farmers. ICUC, Southampton <a href="http://www.icuc-iwmi.org/files/Publications/Mangosteen_Manual.pdf">http://www.icuc-iwmi.org/files/Publications/Mangosteen_Manual.pdf</a>	Reproduction is by seed.
607	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/mangosteen.html"	"The young plants take 2 years or more to reach a height of 12 in (30 cm), when they can be taken up with a deep ball of earth and set out. Fruiting may take place in 7 to 9 years from planting but usually not for 10 or even 20 years."

701	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"The fruit, capped by the prominent calyx at the stem end and with 4 to 8 triangular, flat remnants of the stigma in a rosette at the apex, is round, dark-purple to red-purple and smooth externally; 1 1/3 to 3 in (3.4-7.5 cm) in diameter." [unlikely, large fruit]
702	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"The place of origin of the mangosteen is unknown but is believed to be the Sunda Islands and the Moluccas; still, there are wild trees in the forests of Kemaman, Malaya. Corner suggests that the tree may have been first domesticated in Thailand, or Burma. It is much cultivated in Thailand—where there were 9,700 acres (4,000 ha) in 1965—also in Kampuchea, southern Vietnam and Burma, throughout Malaya and Singapore. The tree was planted in Ceylon about 1800 and in India in 1881. There it succeeds in 4 limited areas—the Nilgiri Hills, the Tinnevely district of southern Madras, the Kanya-kumani district at the southernmost tip of the Madras peninsula, and in Kerala State in southwestern India. The tree is fairly common only in the provinces of Mindanao and Sulu (or Jolo) in the Philippines. It is rare in Queensland, where it has been tried many times since 1854, and poorly represented in tropical Africa (Zanzibar, Ghana, Gabon and Liberia). There were fruiting trees in greenhouses in England in 1855. The mangosteen was introduced into Trinidad from the Royal Botanic Garden at Kew, England, between 1850 and 1860 and the first fruit was borne in 1875. It reached the Panama Canal Zone and Puerto Rico in 1903 but there are only a few trees in these areas, in Jamaica, Dominica and Cuba, and some scattered around other parts of the West Indies. The United States Department of Agriculture received seeds from Java in 1906 (S.P.I. #17146). A large test block of productive trees has been maintained at the Lancelilla Experimental Station at Tela, Honduras, for many years. Quite a few trees distributed by the United Fruit Company long ago have done well on the Atlantic coast of Guatemala. In 1924, Dr. Wilson Popenoe saw the mangosteen growing at one site in Ecuador. In 1939, 15,000 seeds were distributed by the Canal Zone Experiment Gardens to many areas of tropical America. It is probable that only a relatively few seedlings survived. It is known that many die during the first year. Dr. Victor Patiño has observed flourishing mangosteen trees at the site of an old mining settlement in Mariquita, Colombia, in the Magdalena Valley and the fruits are sold on local markets. Dierberger Agricola Ltda., of Sao Paulo, included the mangosteen in their nursery catalog in 1949."
703	2010. WRA Specialist. Personal Communication.	No evidence of produce contaminant.
704	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"The fruit, capped by the prominent calyx at the stem end and with 4 to 8 triangular, flat remnants of the stigma in a rosette at the apex, is round, dark-purple to red-purple and smooth externally; 1 1/3 to 3 in (3.4-7.5 cm) in diameter." [no adaptation for wind dispersal]
705	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"The fruit, capped by the prominent calyx at the stem end and with 4 to 8 triangular, flat remnants of the stigma in a rosette at the apex, is round, dark-purple to red-purple and smooth externally; 1 1/3 to 3 in (3.4-7.5 cm) in diameter."
705	1995. Anonymous. News and notes from readers. The Drifting Seed. 1: 8.	On February 21, 1995, Dana Marple of Cape Canaveral found a stranded fruit in the wrack at Cape Canaveral beach. It is <i>Garcinia mangostana</i> , L., from the Clusiaceae. G.C. Cadée discusses and depicts this fruit (figs. 2a & b) in his paper published in <i>Heb Zeepaard</i> 51(3): 56-64. 1991. Others who have found stranded mangosteen fruits include Lindman from the Lofoten Islands (Norway), Ridley from the Cocos-Keeling Island and from Portland Island in the English Channel. These collections are not thought to be the result of long range drifting, but the result of a "ship's garbage." Gunn, Dennis, and Paradine do not list the mangosteen as a drift fruit in their <i>World Guide to Tropical Drift Seeds and Fruits</i> . But this does not rule out the drift capacity of the Marple fruit. Ship's garbage or drift?
706	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"The fruit, capped by the prominent calyx at the stem end and with 4 to 8 triangular, flat remnants of the stigma in a rosette at the apex, is round, dark-purple to red-purple and smooth externally; 1 1/3 to 3 in (3.4-7.5 cm) in diameter."
707	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"The fruit, capped by the prominent calyx at the stem end and with 4 to 8 triangular, flat remnants of the stigma in a rosette at the apex, is round, dark-purple to red-purple and smooth externally; 1 1/3 to 3 in (3.4-7.5 cm) in diameter." [no external means of attachment].
708	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"The fruit, capped by the prominent calyx at the stem end and with 4 to 8 triangular, flat remnants of the stigma in a rosette at the apex, is round, dark-purple to red-purple and smooth externally; 1 1/3 to 3 in (3.4-7.5 cm) in diameter." Unknown.

801	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	"Cropping is irregular and the yield varies from tree to tree and from season to season. The first crop may be 200 to 300 fruits. Average yield of a full-grown tree is about 500 fruits. The yield steadily increases up to the 30th year of bearing when crops of 1,000 to 2,000 fruits may be obtained. In Madras, individual trees between the ages of 20 and 45 years have borne 2,000 to 3,000 fruits. Productivity gradually declines thereafter, though the tree will still be fruiting at 100 years of age."
802	1987. Morton, J.. Fruits of warm climates - Mangosteen. "http://www.hort.purdue.edu/newcrop/morton/man gosteen.html	Seeds "will lose viability in 5 days after removal from the fruit, though they are viable for 3 to 5 weeks in the fruit. Seeds packed in lightly dampened peat moss, sphagnum moss or coconut fiber in airtight containers have remained viable for 3 months. Only 22% germination has been realized in seeds packed in ground charcoal for 15 days." (
803	2010. WRA Specialist. Personal Communication.	Unknown.
804	1995. Yaacob, O./Tindall, H.D.. Mangosteen Cultivation. Food and Agriculture Organization of the United Nations, Rome	"A judicious pruning, increasing light penetration into the tree canopy is a desirable practice. Severe pruning may, however considerably reduce the level of production."
805	2010. WRA Specialist. Personal Communication.	Unknown.