

**Family:** *Rutaceae*

**Taxon:** *Citrus hystrix*

**Synonym:** *Citrus auraria* Michel  
*Citrus torosa* Blanco

**Common Name:** Kaffir lime  
Mauritius papeda  
Thai lime

Questionnaire :	current 20090513	Assessor:	Assessor	Designation:	EVALUATE
Status:	Assessor Approved	Data Entry Person:	Assessor	WRA Score	1
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)		Low
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		y
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)		y
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		y
407	Causes allergies or is otherwise toxic to humans		y=1, n=0		
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		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0		y

411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>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	n
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: EVALUATE

WRA Score **1**

## Supporting Data:

101	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 4, Fruits. Springer, New York	[Is the species highly domesticated? No] "The species is native to tropical southeast Asia, southern China and Malaysia. It has been introduced and cultivated elsewhere in the tropics and sub-tropics including in northern Australia."
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
201	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Species suited to tropical or subtropical climate(s) 2-High] "Although apparently native to S China into SE Asia and Malesia, the natural distribution of this species is obscured by cultivation."
202	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Quality of climate match data 0-Low]
203	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 4, Fruits. Springer, New York	[Broad climate suitability (environmental versatility)? No] "The species thrives in a warm and wet climate. Trees are mildly frost hardy and grow best in areas that receive only short, mild frosts."
203	2013. Learn 2 Grow. Citrus hystrix. <a href="http://www.learn2grow.com/plants/citrus-hystrix/">http://www.learn2grow.com/plants/citrus-hystrix/</a> [Accessed 05 Dec 2013]	[Broad climate suitability (environmental versatility)? No] "USDA Hardiness Zone: 9 - 11"
204	2004. Mabberley, D.J.. Citrus (Rutaceae): a review of recent advances in etymology, systematics and medical applications. Blumea. 49: 481–498.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "...C. hystrix is apparently wild in much of central Malesia."
204	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Although apparently native to S China into SE Asia and Malesia, the natural distribution of this species is obscured by cultivation."
205	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Does the species have a history of repeated introductions outside its natural range? Yes] "Selected forms are cultivated throughout the warm parts of the world for their culinary (leaves) and medicinal (fruit) uses."
205	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 4, Fruits. Springer, New York	[Does the species have a history of repeated introductions outside its natural range? Yes] "The species is native to tropical southeast Asia, southern China and Malaysia. It has been introduced and cultivated elsewhere in the tropics and sub-tropics including in northern Australia."
301	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Naturalized beyond native range? Yes] "Native: ASIA-TEMPERATE China: China - Guangxi, Yunnan ASIA-TROPICAL Indian Subcontinent: Sri Lanka [perhaps not native] Indo-China: Myanmar; Thailand [s.] Malesia: Indonesia; Malaysia [Malaya]; New Guinea; Philippines Naturalized: widely naturalized "
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? No evidence]
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No evidence]
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Environmental weed? No evidence]
305	2001. Tye, A.. Invasive plant problems and requirements for weed risk assessment in the Galapagos Islands. Pp. 153-175 in Groves, R.H. et al. (eds.) Weed risk assessment. CSIRO Publishing, Collingwood, Australia	[Congeneric weed? Yes] "Even before permanent settlement, Floreana contained large areas dominated by introduced plants such as Citrus spp. (Slevin 1959; Hamann 1984)." ... "Group 5, including Ochroma, Cordia, Persea, comprises trees which are invading slowly; they are either in the early stages of invasion (Ochroma, Cordia) or have heavy seeds and therefore naturally spread more slowly (Persea, the Citrus spp.). Most have not yet caused serious ecological damage, but any tree of their size will probably have dramatic effects on the lower-growing native vegetation that it is invading, especially those species (Citrus, Persea) which tend to form dense monospecific stands."

401	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Produces spines, thorns or burrs? Yes] "Trees 3–6 m tall. Branchlets with spines."
402	2013. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Parasitic? No] "Trees 3–6 m tall."
404	2013. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown] Spines and/or oils in foliage may deter browsing
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Host for recognized pests and pathogens? Yes] "Kaffir lime is highly susceptible to tristeza and should be grown from virus-resistant selections grafted or budded onto resistant rootstocks, rather than from seed or by cuttings."
406	2012. National Organic Standards Board (NOSB). Petition to add Citrus hystrix leaves and fruit to §205.606 of the National List. <a href="http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5098918">http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5098918</a> .	[Host for recognized pests and pathogens? Yes] "Citrus hystrix is not a common crop in the United States; and is limited in its potential to be cultivated in that there a plant quarantine exists from the USDA due to citrus greening disease (Asian citrus psyllid) and the threat of spreading this debilitating plant disease throughout the country. Citrus greening disease is not limited to Citrus hystrix and it may be spread to other varieties of citrus. Due to this threat of disease, and the relatively unknown status of the ingredient in cuisines most common in the United States, this plant and its products are currently not well known or propagated."
407	2013. Shoot Gardening. Citrus hystrix (Thai lime). <a href="http://www.shootgardening.co.uk/plant/citrus-hystrix">http://www.shootgardening.co.uk/plant/citrus-hystrix</a> [Accessed 05 Dec 2013]	[Causes allergies or is otherwise toxic to humans? Possibly to susceptible individuals] "Toxicity: Excessive exposure to peel oil may cause skin irritation. Contact with sap may cause skin irritation"
408	2013. WRA Specialist. Personal Communication.	[Creates a fire hazard in natural ecosystems? No evidence that this tree occurs in fire prone ecosystems or otherwise contributes to increased fire risk]
409	1999. Staples, G./Kristiansen, M.S.. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	[Is a shade tolerant plant at some stage of its life cycle?] "Exposure: Full sun" ... "The Kaffir lime requires full sunlight from all sides for healthy growth."
409	2006. Elevitch, C.R./Abbott, I.A./Leakey, R.R.B.. Traditional trees of Pacific Islands: their culture, environment, and use. Permanent Agriculture Resources, Honolulu, HI	[Is a shade tolerant plant at some stage of its life cycle?] "Citrus can tolerate minimal shading."
409	2008. Kobayashi, K./Criley, R./Kaufman, A./Tsugawa, S./Ricordi, A./Clifford, P.. Barrier Plants. L-20. College of Tropical Agriculture and Human Resources (CTAHR, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/freepubs">http://www.ctahr.hawaii.edu/freepubs</a>	[Is a shade tolerant plant at some stage of its life cycle?] "This small tree with dark, glossy, green leaves grows well in full sun to light shade with a moist, well drained soil."
410	2013. Shoot Gardening. Citrus hystrix (Thai lime). <a href="http://www.shootgardening.co.uk/plant/citrus-hystrix">http://www.shootgardening.co.uk/plant/citrus-hystrix</a> [Accessed 05 Dec 2013]	[Tolerates a wide range of soil conditions? Yes] "Soil type: Clay, Loamy, Sandy Soil drainage: Moist but well-drained, Well-drained Soil pH: Neutral, Acid"
411	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Climbing or smothering growth habit? No] "Trees 3–6 m tall."
412	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Forms dense thickets? No evidence] "Although apparently native to S China into SE Asia and Malesia, the natural distribution of this species is obscured by cultivation. Selected forms are cultivated throughout the warm parts of the world for their culinary (leaves) and medicinal (fruit) uses."
412	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 4, Fruits. Springer, New York	[Forms dense thickets? No evidence] "The species is native to tropical southeast Asia, southern China and Malaysia. It has been introduced and cultivated elsewhere in the tropics and sub-tropics including in northern Australia."
501	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Aquatic? No] "Trees 3–6 m tall."

502	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Grass? No] Rutaceae
503	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Nitrogen fixing woody plant? No] Rutaceae
504	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Trees or shrubs, 2–10 m tall. Branchlets subglabrous; spines straight, stout, smaller on flowering branches. Leafy petiole 1–3 × as long as blade, narrowly elliptic, 6–16 × 2.5–4 cm, base cuneate, margin finely crenulate, apex rounded; leaf blades ovate-lanceolate, ca. 2(–8) × 0.7–1.5(–4.5) cm, margin entire to finely crenate, apex acuminate."
601	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Evidence of substantial reproductive failure in native habitat? No] "Although apparently native to S China into SE Asia and Malesia, the natural distribution of this species is obscured by cultivation." [Despite uncertain area of origin, no evidence of substantial reproductive failure has been documented]
602	1999. Staples, G./Kristiansen, M.S.. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	[Produces viable seed? Yes] "Propagation Methods: Seed: Not commonly done, because seedlings are slow growing."
603	2004. Mabberley, D.J.. Citrus (Rutaceae): a review of recent advances in etymology, systematics and medical applications. Blumea. 49: 481–498.	[Hybridizes naturally? Unknown] "All Citrus have 2n = 18, though some cultivated forms have 27 and 36, but there are no known wild polyploids (Frost, 1943). Hybrids are readily raised and, because seed can be set through apomixis, that is, without fertilization with embryos arising from the diploid nucellar tissue, desirable forms can readily be propagated."
604	1995. Roubik, D.W.. Pollination of cultivated plants in the tropics. FAO Services Bulletin 118. FAO, Rome, Italy	[Self-compatible or apomictic? Yes. Self-compatible, but requires a pollinator] "Appendix I ... Citrus hystrix ... Breed. Sys. = Au. -OC" [AU = autogamous (and also self-compatible); OC = obligately outcrossing ... or, when used in combination with SC, signifying that the pollen must be carried by a vector - the plant is not capable of selfing]
605	1995. Roubik, D.W.. Pollination of cultivated plants in the tropics. FAO Services Bulletin 118. FAO, Rome, Italy	[Requires specialist pollinators? No] "Appendix I ... Citrus hystrix ... Pollinators = bee, Apis"
605	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 4, Fruits. Springer, New York	[Requires specialist pollinators? No] "Flowers are small, fragrant, white; calyx cuspidate 4-lobed, white with violet fringe; petals 4–5, ovate-oblong, yellowish white tinged with pink; stamens 24–30 free"
606	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 4, Fruits. Springer, New York	[Reproduction by vegetative fragmentation? No evidence] "The plant is propagated from seeds and grafting."
607	1999. Staples, G./Kristiansen, M.S.. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	[Minimum generative time (years)? 4+] "The growth rate is slow and roots develop faster in well-drained soils."
607	2013. Shoot Gardening. Citrus hystrix (Thai lime). <a href="http://www.shootgardening.co.uk/plant/citrus-hystrix">http://www.shootgardening.co.uk/plant/citrus-hystrix</a> [Accessed 05 Dec 2013]	[Minimum generative time (years)? 4+] "10-20 years To maturity"
701	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "Fruit lemon yellow, ellipsoid to subglobose, 5–7 × 3–5 cm, slightly coarse or smooth, oil dots numerous and prominent, apex rounded; pericarp thick; sarcocarp in 11–13 segments, very acidic and slightly bitter. Seeds numerous 1.5–1.8 × 1–1.2 cm, ridged; embryo solitary; cotyledons milky white." [Unlikely. Fruits and seeds are relatively large and lack means of external attachment]
702	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules dispersed intentionally by people? Yes] "Selected forms are cultivated throughout the warm parts of the world for their culinary (leaves) and medicinal (fruit) uses."
703	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules likely to disperse as a produce contaminant? No] "Fruit lemon yellow, ellipsoid to subglobose, 5–7 × 3–5 cm, slightly coarse or smooth, oil dots numerous and prominent, apex rounded; pericarp thick; sarcocarp in 11–13 segments, very acidic and slightly bitter. Seeds numerous 1.5–1.8 × 1–1.2 cm, ridged; embryo solitary; cotyledons milky white." [Fruits and seeds are relatively large and unlikely to become an inadvertent contaminant of produce]

704	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules adapted to wind dispersal? No] "Fruit lemon yellow, ellipsoid to subglobose, 5–7 × 3–5 cm, slightly coarse or smooth, oil dots numerous and prominent, apex rounded; pericarp thick; sarcocarp in 11–13 segments, very acidic and slightly bitter. Seeds numerous 1.5–1.8 × 1–1.2 cm, ridged; embryo solitary; cotyledons milky white."
705	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules water dispersed? No] "Fruit lemon yellow, ellipsoid to subglobose, 5–7 × 3–5 cm, slightly coarse or smooth, oil dots numerous and prominent, apex rounded; pericarp thick; sarcocarp in 11–13 segments, very acidic and slightly bitter. Seeds numerous 1.5–1.8 × 1–1.2 cm, ridged; embryo solitary; cotyledons milky white." [Fruit size and distribution of trees suggests seeds are not water dispersed, although fruit may possibly float in water]
706	2004. Mabberley, D.J.. Citrus (Rutaceae): a review of recent advances in etymology, systematics and medical applications. Blumea. 49: 481–498.	[Propagules bird dispersed? No evidence] "What we need to know is of truly wild populations of citrus in Asia including Malaysia, Indonesia and the Philippines." ... "Even then, as far as I know, there are precious few observations on pollination in wild plants, only preliminary observations on germination, beyond those of Leeuwenhoek (e.g. Lim, 2001) and absolutely nothing on what the dispersal agents are or were (such big fruits as pomelos suggest primates, extinct large mammals or perhaps rhinoceros)."
707	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 4, Fruits. Springer, New York	[Propagules dispersed by other animals (externally)? No] "Fruit is large, verrucose, warty or bumpy, globose, ovoid to elliptic, green (Plates 2 , 3 , 4 and 5 ) turning yellowish-green when ripe, 5–7 cm diameter, rind thick, pulp yellowish, very acid and bitter." [Although fruits may be carried externally for consumption, there is no evidence that this occurs in the wild]
708	2004. Mabberley, D.J.. Citrus (Rutaceae): a review of recent advances in etymology, systematics and medical applications. Blumea. 49: 481–498.	[Propagules survive passage through the gut? Possibly] "What we need to know is of truly wild populations of citrus in Asia including Malaysia, Indonesia and the Philippines." ... "Even then, as far as I know, there are precious few observations on pollination in wild plants, only preliminary observations on germination, beyond those of Leeuwenhoek (e.g. Lim, 2001) and absolutely nothing on what the dispersal agents are or were (such big fruits as pomelos suggest primates, extinct large mammals or perhaps rhinoceros)."
801	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Prolific seed production (>1000/m <sup>2</sup> )? Unlikely. Seeds relatively large] "Fruit lemon yellow, ellipsoid to subglobose, 5–7 × 3–5 cm, slightly coarse or smooth, oil dots numerous and prominent, apex rounded; pericarp thick; sarcocarp in 11–13 segments, very acidic and slightly bitter. Seeds numerous 1.5–1.8 × 1–1.2 cm, ridged"
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a>	[Evidence that a persistent propagule bank is formed (>1 yr)?] "Storage Behaviour: Orthodox Storage Conditions: Hanson (1984) classified seed storage behaviour as orthodox, but no data were presented."
803	2013. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species
804	2010. gardenguides.com. Kaffir Lime Tree Care. <a href="http://www.gardenguides.com/116816-kaffir-lime-tree-care.html">http://www.gardenguides.com/116816-kaffir-lime-tree-care.html</a> [Accessed 06 Dec 2013]	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown. Tolerates some pruning] "Prune after new growth starts in the spring. While outdoor trees will not require pruning other than to remove crossed, damaged or broken branches, indoor or container trees can be shaped according to the home gardener's style and to contain the size of the tree."
805	1999. Staples, G./Kristiansen, M.S.. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown] "Kaffir lime is highly susceptible to tristeza and should be grown from virus-resistant selections grafted or budded onto resistant rootstocks, rather than from seed or by cuttings."

## **Summary of Risk Traits**

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

- Grows in tropical climates
- Widely naturalized (although region of origin uncertain)
- Related Citrus species have become invasive
- Branchlets with spines
- Host for citrus greening disease
- Contact with sap may cause skin irritation
- Tolerates many soil types
- Self-compatible and spreads by seeds
- Fruit possibly consumed by large frugivorous mammals that could disperse the seeds (feral pigs may fill this role in the Hawaiian Islands)

### **Low Risk Traits**

- Not reported to be invasive or weedy
- Edible leaves used in cooking
- Not known to spread vegetatively
- Relatively large fruits and seeds unlikely to be accidentally dispersed