

**Family:** *Euphorbiaceae*

**Taxon:** *Euphorbia tirucalli*

**Synonym:** *Euphorbia laro* Drake

**Common Name:** African milkbush  
fingertree  
Indian tree-spurge  
milkhedge  
penchtree  
petroleum-plant  
rubber euphorbia

<b>Questionnaire :</b>	current 20090513	<b>Assessor:</b>	Patti Clifford	<b>Designation:</b>	
<b>Status:</b>	Assessor Approved	<b>Data Entry Person:</b>	Patti Clifford	<b>WRA Score</b>	<b>11</b>
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	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			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	y
405	Toxic to animals			y=1, n=0	
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	y
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	n
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	
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	n
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	
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
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	y
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/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation:

WRA Score 11

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**Supporting Data:**

101	2010. WRA Specialist. Personal Communication.	No evidence.
201	2010. USDA, ARS, National Genetic Resources Program.. Germplasm Resources Information Network - (GRIN) [Online Database].. National Germplasm Resources Laboratory, Bethesda, Maryland	Native: Eritrea; Ethiopia; Sudan; Kenya; Tanzania; Uganda; Rwanda; Angola; Mozambique; South Africa; Swaziland; Madagascar
202	2010. USDA, ARS, National Genetic Resources Program.. Germplasm Resources Information Network - (GRIN) [Online Database].. National Germplasm Resources Laboratory, Bethesda, Maryland	Native: Eritrea; Ethiopia; Sudan; Kenya; Tanzania; Uganda; Rwanda; Angola; Mozambique; South Africa; Swaziland; Madagascar
203	2010. World Agroforestry Center. Agroforestry Tree Database. <a href="http://www.worldagroforestry.org/">http://www.worldagroforestry.org/</a>	It is normally found in dry bushland thickets and naturalizes easily in brushwood, open woodland and grassland up to 2 000 m.
204	2010. USDA, ARS, National Genetic Resources Program.. Germplasm Resources Information Network - (GRIN) [Online Database].. National Germplasm Resources Laboratory, Bethesda, Maryland	Native: Eritrea; Ethiopia; Sudan; Kenya; Tanzania; Uganda; Rwanda; Angola; Mozambique; South Africa; Swaziland; Madagascar
205	1983. Duke, J.A.. Handbook of Energy Crops. unpublished, <a href="http://www.hort.purdue.edu/newcrop/duke_energy/euphorbia_tirucalli.html">http://www.hort.purdue.edu/newcrop/duke_energy/euphorbia_tirucalli.html</a>	Introduced to Brazil where it is used as a hedge.
205	2010. Gold Hill Farms. Gold Hill Farms [online plant sales]. <a href="http://doleaf.com/stores/gold-hill-plant-farm">http://doleaf.com/stores/gold-hill-plant-farm</a>	Gold Hill Farms in Alabama sells <i>Euphorbia tirucalli</i> .
205	2010. Jenny's Garden. Jenny's Garden [online plant description and plant sales]. <a href="http://jennysgarden.com/">http://jennysgarden.com/</a>	It is also grown for its traditional medicinal value in countries like Malaysia, Indonesia, India, Braziland Malabar for the treatment of cancer, tumors, warts and excrescences.
301	1992. Corlett, R.T.. The naturalized flora of Hong Kong: a comparison with Singapore. <i>Journal of Biogeography</i> . 19: 421-430.	<i>Euphorbia tirucalli</i> is naturalized in Hong Kong.
302	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as a garden escape, but literature does not indicate control.
303	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as an agricultural weed, but no evidence of impacts or control in the literature.
304	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as an environmental weed, but no evidence of impact and control in the literature.
305	2010. USDA Forest Service. Weed of the Week. USDA Forest Service, Newton Square <a href="http://www.na.fs.fed.us/fhp/invasive_plants/">http://www.na.fs.fed.us/fhp/invasive_plants/</a>	<i>Euphorbia esula</i> is an aggressive invader that can completely take over large areas of open land. It displaces native vegetation in prairie habitats and fields through shading and by usurp available water and nutrients and through plant toxins that prevent the growth of other plants underneath it.
401	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	No spines, thorns or burrs.
403	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Not parasitic.
404	2010. Food and Agriculture Organization of the United Nations. FAO. <a href="http://www.fao.org/">http://www.fao.org/</a>	Tree is fairly resistant to cattle. It is planted as a live fence.
404	2010. South African National Biodiversity Institute. PlantzAfrica.com. <a href="http://www.plantzafrika.com/">http://www.plantzafrika.com/</a>	The plants are drought resistant and very resilient, which is why it has become popular in cultivation. It uses its green stems to photosynthesize and is therefore able to minimize surface exposure and water loss. As far as can be established, there have been no recordings of animals that eat the branches of <i>E. tirucalli</i> . It is possible that the poisonous latex that the plant produces may act as a deterrent to browsers.
405	2010. WRA Specialist. Personal Communication.	Unknown

406	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	The succulent euphorbias have very few insect or disease problems.
406	2010. World Agroforestry Center. Agroforestry Tree Database. <a href="http://www.worldagroforestry.org/">http://www.worldagroforestry.org/</a>	The nematode <i>Meloidogyne incognita</i> infests <i>E. tirucalli</i> in India
407	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Pruning is a hazardous activity because the sap is highly poisonous and corrosive, causing blisters upon contact with the skin.
408	2010. Food and Agriculture Organization of the United Nations. FAO. <a href="http://www.fao.org/">http://www.fao.org/</a>	Tree is not resistant to fire.
409	2010. Floridata. Floridata [online plant database]. <a href="http://www.floridata.com/">http://www.floridata.com/</a>	Light: Bright light or sun; pencil tree needs all the light you can give it
409	2010. South African National Biodiversity Institute. PlantzAfrica.com. <a href="http://www.plantzafrika.com/">http://www.plantzafrika.com/</a>	These beautiful trees are best positioned in open, full sun positions on rocky situations such as a rock garden, embankment or gravelly slopes.
410	2010. World Agroforestry Center. Agroforestry Tree Database. <a href="http://www.worldagroforestry.org/">http://www.worldagroforestry.org/</a>	Grows on any soil type.
411	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Shrub or tree 6-20' tall.
412	2009. Hodgkiss, R.J.. The Succulent Plant Page. <a href="http://www.succulent-plant.com/home.html">http://www.succulent-plant.com/home.html</a>	<i>Euphorbia tirucalli</i> is used as an impenetrable hedge or livestock enclosure. [cultivated situation]
501	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Terrestrial.
502	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Euphorbiaceae
503	2010. USDA, ARS, National Genetic Resources Program.. Germplasm Resources Information Network - (GRIN) [Online Database].. National Germplasm Resources Laboratory, Bethesda, Maryland	Euphorbiaceous
504	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Tree or shrub.
601	2010. South African National Biodiversity Institute. PlantzAfrica.com. <a href="http://www.plantzafrika.com/">http://www.plantzafrika.com/</a>	<i>Euphorbia tirucalli</i> is abundant in southern Africa and seeds itself freely across its distribution range. It is well represented in various habitats and is not an endangered species
602	2010. Postuma, P.. Grow'em plant propagation database [online]. <a href="http://grow.ars-informatica.ca/">http://grow.ars-informatica.ca/</a>	Propagate from seed or cuttings.
603	2010. WRA Specialist. Personal Communication.	Unknown
604	1983. Duke, J.A.. Handbook of Energy Crops. unpublished, <a href="http://www.hort.purdue.edu/newcrop/duke_energy/euphorbia_tirucalli.html">http://www.hort.purdue.edu/newcrop/duke_energy/euphorbia_tirucalli.html</a>	Dioecious.
605	2010. South African National Biodiversity Institute. PlantzAfrica.com. <a href="http://www.plantzafrika.com/">http://www.plantzafrika.com/</a>	<i>Euphorbia tirucalli</i> produces yellowish flowers that attract butterflies, bees and other insects. These are primarily responsible for pollination as the flowers also produces minute quantities of nectar. The seeds are also eaten by various birds.
605	2010. World Agroforestry Center. Agroforestry Tree Database. <a href="http://www.worldagroforestry.org/">http://www.worldagroforestry.org/</a>	<i>E. tirucalli</i> flowers in October and fruits from November-December and is pollinated by insects.
606	2010. Postuma, P.. Grow'em plant propagation database [online]. <a href="http://grow.ars-informatica.ca/">http://grow.ars-informatica.ca/</a>	Propagate from seed or cuttings.
607	2010. Food and Agriculture Organization of the United Nations. FAO. <a href="http://www.fao.org/">http://www.fao.org/</a>	Medium to fast growing.

701	2010. Food and Agriculture Organization of the United Nations. FAO. <a href="http://www.fao.org/">http://www.fao.org/</a>	Planted as a low, live boma hedge and windbreak in dry areas and livestock rearing areas. It is used mainly along boundaries, enclosing dwellings, fields and swamps, along tracks, roads, and waterways.
702	2010. Food and Agriculture Organization of the United Nations. FAO. <a href="http://www.fao.org/">http://www.fao.org/</a>	Succulent shrub common in the livestock rearing areas of Arusha, Dodoma, Mwanza, and Singida where it is planted as a boma and live fence. <i>E. tirucalli</i> is widely distributed, and adaptable to a range of sites, including marginal, drought prone zones
702	2010. Jenny's Garden. Jenny's Garden [online plant description and plant sales]. <a href="http://jennysgarden.com/">http://jennysgarden.com/</a>	It is also grown for its traditional medicinal value in countries like Malaysia, Indonesia, India, Brazil and Malabar for the treatment of cancer, tumors, warts and excrescences
703	2010. Food and Agriculture Organization of the United Nations. FAO. <a href="http://www.fao.org/">http://www.fao.org/</a>	Grown as living fences, but not with produce.
703	2010. WRA Specialist. Personal Communication.	No evidence.
704	2005. Wigtrup, I.. The Role of Indigenous Knowledge in Forest Management. Graduate Thesis in Forest Management. Department of Silviculture Swedish University of Agricultural Sciences, Umea <a href="http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig">http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig</a>	In the Sook and Masol Division, West Pokot District, Kenya, <i>Euphorbia tirucalli</i> is said to disperse by birds and flood water. [no adaptation for wind dispersal]
705	2005. Wigtrup, I.. The Role of Indigenous Knowledge in Forest Management. Graduate Thesis in Forest Management. Department of Silviculture Swedish University of Agricultural Sciences, Umea <a href="http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig">http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig</a>	In the Sook and Masol Division, West Pokot District, Kenya, <i>Euphorbia tirucalli</i> is said to disperse with flood waters.
706	2005. Wigtrup, I.. The Role of Indigenous Knowledge in Forest Management. Graduate Thesis in Forest Management. Department of Silviculture Swedish University of Agricultural Sciences, Umea <a href="http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig">http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig</a>	In the Sook and Masol Division, West Pokot District, Kenya, <i>Euphorbia tirucalli</i> is said to disperse by birds.
707	2005. Wigtrup, I.. The Role of Indigenous Knowledge in Forest Management. Graduate Thesis in Forest Management. Department of Silviculture Swedish University of Agricultural Sciences, Umea <a href="http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig">http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig</a>	In the Sook and Masol Division, West Pokot District, Kenya, <i>Euphorbia tirucalli</i> is said to disperse by birds and flood water. [no external means of attachment]
708	2005. Wigtrup, I.. The Role of Indigenous Knowledge in Forest Management. Graduate Thesis in Forest Management. Department of Silviculture Swedish University of Agricultural Sciences, Umea <a href="http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig">http://ex-epsilon.slu.se:8080/archive/00001097/01/The_Role_of_Indig</a>	Bird dispersed.
801	2010. WRA Specialist. Personal Communication.	Unknown
802	2010. WRA Specialist. Personal Communication.	Unknown
803	2004. Bureau of Invasive Plant Management Florida Department of Environmental Protection. Upland Invasive Exotic Plant Management Program Fiscal Year 2003-2004 Annual Report. <a href="http://www.floridainvasives.org/toolbox/reports/uplandsfy03-04.pdf">http://www.floridainvasives.org/toolbox/reports/uplandsfy03-04.pdf</a>	A basal treatment of Garlon 4 was used to control <i>Euphorbia tirucalli</i> on USFW lands in the Florida keys. Control efficacy was not mentioned.
804	2010. World Agroforestry Center. Agroforestry Tree Database. <a href="http://www.worldagroforestry.org/">http://www.worldagroforestry.org/</a>	<i>Euphorbia tirucalli</i> coppices well at 20-30 cm
805	2010. WRA Specialist. Personal Communication.	Unknown

