

**Family:** *Commelinaceae*

**Taxon:** *Commelina diffusa*

**Synonym:**

**Common Name:** honohono grass  
climbing dayflower  
spreading dayflower

<b>Questionnaire :</b>	current 20090513	<b>Assessor:</b>	Patti Clifford	<b>Designation:</b> H(HPWRA)
<b>Status:</b>	Assessor Approved	<b>Data Entry Person:</b>	Patti Clifford	<b>WRA Score</b> 23
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)	y
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	y
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	y
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	n
405	Toxic to animals		y=1, n=0	n
406	Host for recognized pests and pathogens		y=1, n=0	y
407	Causes allergies or is otherwise toxic to humans		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	y

411	Climbing or smothering growth habit	y=1, n=0	y
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	n
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	y
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	
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	y
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: H(HPWRA)

WRA Score 23

---

**Supporting Data:**

101	2011. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No] No evidence of domestication that reduces invasive traits.
102	2011. WRA Specialist. Personal Communication.	[Has the species become naturalized where grown? NA]
103	2011. WRA Specialist. Personal Communication.	[Does the species have weedy races? NA]
201	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.html">http://www.ctahr.hawaii.edu/invweed/weedsHi.html</a>	[Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"? 2-High] Native to Old World tropics.
201	2011. 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>	[Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"? 2-High] Native: throughout tropic and temperate zones.
202	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.html">http://www.ctahr.hawaii.edu/invweed/weedsHi.html</a>	[Quality of climate match data? 2-High] From Old World tropics.
202	2011. 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>	[Quality of climate match data? 2-High] From tropical and warm temperate zones.
203	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Broad climate suitability (environmental versatility) Yes] Forests, thickets, streambanks, humid open places; near sea level to 2100 m. Guangdong, SW Guangxi (Longzhou Xian, Pingxiang Shi), SW Guizhou (Anlong Xian, Wangmo Xian), Hainan, SE Xizang (Mêdog Xian), SE Yunnan [tropics and subtropics worldwide].
203	2010. Caton, B.P./Mortimer, M./Hill, J.E./Johnson, D.E.. A practical field guide to weeds of rice in Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=LaJg-owvGdQC&amp;pg=PA24&amp;lpg=PA24&amp;dq=commelina+diffusa+%2B+%22contaminant%22&amp;so">http://books.google.com/books?id=LaJg-owvGdQC&amp;pg=PA24&amp;lpg=PA24&amp;dq=commelina+diffusa+%2B+%22contaminant%22&amp;so</a>	[Broad climate suitability (environmental versatility) Yes] Elevation up to 2,000 meters.
204	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.html">http://www.ctahr.hawaii.edu/invweed/weedsHi.html</a>	[Native or naturalized in regions with tropical or subtropical climates? Yes] Environmental weed in pastures and natural areas in Hawaii.
205	1977. Holm, L.G./Plucknett, D.L./Pancho, J.V./Herberger, J.P.. The world's worst weeds: distribution and biology. East-West Center, University Press of Hawaii, Honolulu, HI	Commelina diffusa and Murdannia nudiflora are also weeds of multiple crops in many countries.
205	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Does the species have a history of repeated introductions outside its natural range? Yes] Commelina species notably C. communis L, C. diffusa Burm, C. elegans Kunth. and benghalensis L. as well as their biotypes are perennial herbs of Neotropical origin which now have a pantropical distribution.

205	2008. Prebble, M.. No fruit on that beautiful shore: what plants were introduced to the subtropical Polynesian Islands prior to European contact? Chapter 15 in: Islands of inquiry. Terra Australis 29, <a href="http://palaeoworks.anu.edu.au/pubs/Prebble_ch15.pdf">http://palaeoworks.anu.edu.au/pubs/Prebble_ch15.pdf</a>	[Does the species have a history of repeated introductions outside its natural range? Yes] "Commelina diffusa is regarded as a pan-tropical species, but its precise origin is unclear. On Cook's second voyage to the Pacific in 1773, Georg Forster collected <i>C. pacifica</i> (syn. <i>C. diffusa</i> ) from Tonga (Forster 1786:358) and New Caledonia. The plant was also known from the Hawaiian Islands at the time of Cook's arrival (Hillebrand 1888)."
301	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Naturalized beyond native range? Yes] Forms carpet in natural areas displacing native plants in humid forests and wetlands.
301	2008. Prebble, M.. No fruit on that beautiful shore: what plants were introduced to the subtropical Polynesian Islands prior to European contact? Chapter 15 in: Islands of inquiry. Terra Australis 29, <a href="http://palaeoworks.anu.edu.au/pubs/Prebble_ch15.pdf">http://palaeoworks.anu.edu.au/pubs/Prebble_ch15.pdf</a>	[Naturalized beyond native range? Yes] According to Meyer (2004) and Florence (1997), this plant is regarded as an invasive weed, where on Mangareva (Gambier Islands, French Polynesia) it threatens a small population of the rare endemic plant <i>Pilea sancti-johannis</i> (Urticaceae), along with a number of other indigenous species. Located on Rapa in the earliest botanical surveys and on Pitcairn and Rapanui in recent surveys, it appears to be equally invasive, especially in lowland swamp and marsh environments and abandoned <i>Colocasia</i> agricultural fields."
302	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Garden/amenity/disturbance weed? No] Scored as an environmental weed. [can't score as both garden and environmental weed]
303	1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vXRTqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res">http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vXRTqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res</a>	[Agricultural/forestry/horticultural weed? Yes] "A pantropical weed extending somewhat into temperate zones. Widely distributed and has been reported as a weed in 17 crops in 26 countries. Common in upland rice in India, Indonesia, Lao PDR, Philippines, and Thailand and present in Bangladesh, Myanmar, and Vietnam. In the USA its sudden emergence as a noxious weed is attributed to crop production practices which are well suited for prolific weed growth such as minimum – tillage production (which is undertaken in conjunction with the use of GM glyphosate – resistant crops) and extreme tolerance to glyphosate (Ferrell et al., 2004; Webster et al., 2004). Webster et al., (2006) argues that the weed appears to be well suited for high input agricultural production where high levels of fertilizers, irrigation and herbicides are used. Prostko et al., (2004) attributes the spread of <i>C. benghalensis</i> in part to the adoption of weed management programmes that lack the use of residual herbicides along with the adoption of reduced tillage production practices. Additionally, Prostko et al., (2004) noted that invasive species, after introduction, often go long periods of time (lag period) during which the pest increases in distribution or density without being noticed as an obvious pest."
303	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Agricultural/forestry/horticultural weed? Yes] Forms carpet in wet pastures displacing pasture grass.
303	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Agricultural/forestry/horticultural weed? Yes] "Hammerton (1981) reported Commelina species namely <i>diffusa</i> and <i>elegans</i> to be the 3rd most troublesome weed in the Caribbean where they are a serious problem of banana and other crops in the Windward Islands of Dominica, Grenada, St. Lucia and St. Vincent and the Grenadines."
304	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Environmental weed? Yes] Forms carpet in natural areas displacing native plants in humid forests and wetlands.

304	2008. Prebble, M.. No fruit on that beautiful shore: what plants were introduced to the subtropical Polynesian Islands prior to European contact? Chapter 15 in: Islands of inquiry. Terra Australis 29, <a href="http://palaeoworks.anu.edu.au/pubs/Prebble_ch15.pdf">http://palaeoworks.anu.edu.au/pubs/Prebble_ch15.pdf</a>	[Environmental weed? Yes] According to Meyer (2004) and Florence (1997), this plant is regarded as an invasive weed, where on Mangareva (Gambier Islands, French Polynesia) it threatens a small population of the rare endemic plant <i>Pilea sancti-johannis</i> (Urticaceae), along with a number of other indigenous species. Located on Rapa in the earliest botanical surveys and on Pitcarin and Rapanui in recent surveys, it appears to be equally invasive, especially in lowland swamp and marsh environments and abandoned <i>Colocasia</i> agricultural fields."
305	2005. Webster, T.M./Burton, M.G./Culpepper, S./York, A.C./Prostko, E.P.. Tropical spiderwort ( <i>Commelina benghalensis</i> ): a tropical invader threatens agroecosystems of the Southern United States. <i>Weed Technology</i> . 19: 501-508.	[Congeneric weed? Yes] "Tropical spiderwort (more appropriately called Benghal dayflower) poses a serious threat to crop production in the southern United States. Although tropical spiderwort has been present in the United States for more than seven decades, only recently has it become a pest in agricultural fields. Identified as an isolated weed problem in 1999, tropical spiderwort became the most troublesome weed in Georgia cotton by 2003. Contributing to the significance of tropical spiderwort as a troublesome weed is the lack of control afforded by most commonly used herbicides, especially glyphosate. Vegetative growth and flower production of tropical spiderwort were optimized between 30 and 35 C, but growth was sustained over a range of 20 to 40 C. These temperatures are common throughout much of the United States during summer months. At the very least, it appears that tropical spiderwort may be able to co-occur with cotton throughout the southeastern United States. The environmental limits of tropical spiderwort have not yet been determined. However, the rapid spread through Georgia and naturalization in North Carolina, coupled with its tolerance to current management strategies and aggressive growth habit, make tropical spiderwort a significant threat to agroecosystems in the southern United States."
305	2007. Isacc, W.A.P./Brathwaite, R.A.I.. <i>Commelina</i> species: a review of its weed status and possibilities for alternative weed management in the tropics. <i>AgroThesis</i> . 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Congeneric weed? Yes] " <i>Commelina benghalensis</i> (Tropical spiderwort or Benghal dayflower) has become increasingly important gaining pest significance in agronomic production systems in the southeastern coastal plain of the United States of America (USA) in crops such as cotton ( <i>Gossypium</i> spp.) and peanut ( <i>Arachis hypogea</i> ) (Ferrell et al., 2004; Webster et al., 2006a). This weed was in fact listed as a Federal Noxious weed in Florida and Georgia where it is the most troublesome weed in cotton and a pest in peanut, corn ( <i>Zea mays</i> ), soybean ( <i>Glycine max</i> ), nursery stock and orchards (Webster et al., 2006b). Webster et al., (2006a) noted that this species which was first observed in USA in 1928 (Faden, 1993) gained noxious weed status in 1983 (USDA-APHIS, 2000). Between 1998 to 2001 and then to 2004 this weed which was ranked among the top 39 most troublesome weeds across all crops by Georgia extension agents (in 1998) moved to the 9th most troublesome (in 2001) to the most troublesome cotton weed in Georgia (in 2003) (Webster, 2001) and Florida (2004) and the 3rd most troublesome weed of peanut in several south Georgia counties (Webster et al. 2006a; Prostko et al., 2004). In Georgia alone the weed is estimated to infest more than 80,000 ha (Webster et al., 2006) with a confirmed presence in 29 Georgia counties (Prostko et al., 2005). It is also observed throughout the panhandle and central Florida and listed by the United States Department of Agriculture (USDA) as appearing in more than 12 Florida counties (Ferrell et al., 2004)"
401	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Produces spines, thorns or burrs? No] "Herbs annual. Stems creeping, branched (sometimes at every node), to more than 1 m, glabrous or hispidulous throughout or in a line. Leaves sessile; leaf sheath hispid or hispid-ciliate, with red lines; leaf blade lanceolate or proximal ones oblong, 3--12 × 0.8--3 cm, glabrous or hispid. Involucral bracts borne opposite leaves, folded, ovate-lanceolate, 1--4 cm, glabrous or hispidulous abaxially, base cordate or rounded, apex acuminate or shortly so. Cincinni dichotomously branched from base; 1 branch with 1.5--2 cm long peduncle and 1--4 long-exserted male flowers; other branch with much shorter peduncle and 3--5 bisexual flowers included in involucral bracts; pedicels thick and curved, ca. 3 mm, to 5 mm in fruit. Sepals 3--4 mm, membranous. Petals blue, 2 longer ones 4.2--6 mm. Capsule oblong, trigonous, ca. 5 mm, 3-valved; posterior valve with 1 seed, indehiscent; other 2 valves each with 2 seeds, dehiscent. Seeds black, ovoid-globose, ca. 2 mm, reticulate. Fl. May--Nov."
402	1992. Rizvi, S.J.H./Rizvi, V.. Allelopathy: basic and applied aspects. Chapman & Hall, London, UK	[Allelopathic? Yes] "Ramos et al. (1983) made a study of three of the most abundant species in coffee orchards: <i>Commelina diffusa</i> , <i>Tripodandra serrulata</i> and <i>Zebrina</i> sp. All species, fresh, dried, chopped, as well as their litter, exert a strong growth inhibition upon some weed species. It seems that the allelopathic compounds of commelinas are mainly produced during the rainy season, and those in April, having no means of being released into the environment, are probably produced in lesser proportions."

403	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Parasitic? No] Commelinaceae.
404	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Unpalatable to grazing animals? No] Not relished by cattle, but they will graze it.
404	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Unpalatable to grazing animals? No] "Many species of Commelina are edible by humans and livestock. In parts of Africa and Asia and the Caribbean, <i>C. diffusa</i> is fed as fodder for small livestock and has contributed to the diet of village dairy cows in Mauritius (Boodoo et al., 1990)."
405	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Toxic to animals? No] Not relished by cattle, but they will graze it.
405	2011. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland <a href="http://www.ncbi.nlm.nih.gov/">http://www.ncbi.nlm.nih.gov/</a>	[Toxic to animals? No] No evidence of toxicity.
405	2011. 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>	[Toxic to animals? No] No evidence of toxicity.
406	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Host for recognized pests and pathogens? Yes] Commelina diffusa was once encouraged as a ground cover to reduce soil erosion (Edmunds, 1971) and has been identified as the host of the reniformis nematode <i>Rotylenchulus reniformis</i> (Robinson et al., 1997), the banana lesion nematode <i>Pratylenchus goodeyi</i> (Zimmerman, 1898) and recent data have confirmed its association with the burrowing nematode <i>Radopholus similis</i> (Queneherve et al., 2006). These nematodes all contribute to significant reductions in banana production particularly <i>R. similis</i> , which may reduce banana production by more than 50 % and decrease the production duration of banana fields (Queneherve et al., 2006)."
407	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Causes allergies or is otherwise toxic to humans? No] "A number of benefits have been documented for Commelina species (de Guzman-Ladion (1988); Duke and Ayensu (1985); Duke (1992); Hendrick (1972); Kunkel (1984); Lanyasunya et al., (2006); Leonard (2006); Moerman (1986); Morton (1981); Reid (1977); Ross (1999) and Seaforth et al. (1983). The entire plant is considered useful. These benefits include providing ground cover to prevent soil erosion, edible and pharmaceutical uses. In an FAO article by Marisa Ceccarelli, Commelina species has been referred to as a "Neglected harvest": In the words of Vandana Shiva: "Declaring a locally useful species a weed is another aspect of the politics of disappearance, by which the space of local knowledge shrinks out of existence". "Many species of Commelina are edible by humans and livestock. Young stems of <i>C. diffusa</i> are steamed and eaten as a vegetable by Javans in India (Hedrick, 1972; Kunkel, 1984), young leaves are also eaten fresh in salads or boiled with butter (Duke and Ayensu, 1985) and the small blue flowers and tender flowering tops can be steamed or used as a salad green (Leonard, 2006)."
407	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Causes allergies or is otherwise toxic to humans? No] A medicinal herb with febrifugal and diuretic effects. The petal juice can be used as a dye for painting.
408	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Creates a fire hazard in natural ecosystems? No] Herbaceous annual.

409	1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vIXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res">http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vIXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res</a>	[Is a shade tolerant plant at some stage of its life cycle? Yes] "It is favored in shady situations, and does not grow vigorously under bright, full sunlight where it has been observed to roll up its leaves."
409	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Commelina species are C-3, monocotyledonous plants and therefore have a high efficiency of CO2 uptake at low irradiance (Kennedy et al., 1980) and they therefore tolerate shade very well and could become persistent. They are both annuals and perennials and therefore dominate the fallow vegetation because they are most competitive due to their growth and regeneration characteristics (van Rijin, 2000)."
409	2010. Caton, B.P./Mortimer, M./Hill, J.E./Johnson, D.E.. A practical field guide to weeds of rice in Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=LaJg-owvGdQC&amp;pg=PA24&amp;lpg=PA24&amp;dq=commelina+diffusa+%2B+%22contaminant%22&amp;so">http://books.google.com/books?id=LaJg-owvGdQC&amp;pg=PA24&amp;lpg=PA24&amp;dq=commelina+diffusa+%2B+%22contaminant%22&amp;so</a>	[Is a shade tolerant plant at some stage of its life cycle? Yes] Shade tolerant.
410	1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vIXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res">http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vIXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res</a>	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island) Yes] "C. diffusa thrives in humic or clayey soils that are continuously damp for at least part of the year. It can also persist in sandy or rocky soils, even under fairly dry conditions in cultivated lands, field borders, wet pastures, gardens, roadsides, and waste places."
411	2003. Motoooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.html">http://www.ctahr.hawaii.edu/invweed/weedsHi.html</a>	[Climbing or smothering growth habit? Yes] Forms carpet in natural areas displacing native plants in humid forests and wetlands.
412	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Forms dense thickets? No] "Herbs annual. Stems creeping, branched (sometimes at every node), to more than 1 m."
501	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Aquatic? No] Herbaceous terrestrial.
502	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Grass? No] Commelinaceae.
503	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Nitrogen fixing woody plant? No] Herbaceous.
504	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Herbs annual. Stems creeping, branched (sometimes at every node), to more than 1 m, glabrous or hispidulous throughout or in a line. Leaves subsessile; leaf sheath hispid or hispid-ciliate, with red lines; leaf blade lanceolate or proximal ones oblong, 3--12 x 0.8--3 cm, glabrous or hispid. Involucral bracts borne opposite leaves, folded, ovate-lanceolate, 1--4 cm, glabrous or hispidulous abaxially, base cordate or rounded, apex acuminate or shortly so. Cincinni dichotomously branched from base; 1 branch with 1.5--2 cm long peduncle and 1--4 long-exserted male flowers; other branch with much shorter peduncle and 3--5 bisexual flowers included in involucral bracts; pedicels thick and curved, ca. 3 mm, to 5 mm in fruit. Sepals 3--4 mm, membranous. Petals blue, 2 longer ones 4.2--6 mm. Capsule oblong, trigonous, ca. 5 mm, 3-valved; posterior valve with 1 seed, indehiscent; other 2 valves each with 2 seeds, dehiscent. Seeds black, ovoid-globose, ca. 2 mm, reticulate. Fl. May--Nov." [no mention of underground storage organs]
601	2011. WRA Specialist. Personal Communication.	[Evidence of substantial reproductive failure in native habitat? No] No evidence.

602	1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res">http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res</a>	[Produces viable seed? Yes] Reproduces vegetatively and by seeds.
602	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Produces viable seed? Yes] "The plant is propagated mainly by seeds, stem cuttings and rooting from nodes and pieces (Fournet and Hammerton, 1991; Myint, 1994; Walker and Evenson, 1985a, 1985b). Plants may arise asexually when buds grow into autonomous, adventitiously erect leafy shoots, which later become separated from each other (Duke, 1985). Occasionally the buds may sprout and grow into erect shoots directly without undergoing a period of inactivity (Duke, 1985). Holm et al. (1977) noted that the plant roots readily at the nodes of the creeping stems and will do so especially when broken or cut. Farmers in the Windward Islands report that Commelina species may be intensified when cut with a weed whacker as stolons spread more extensively."
603	2011. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2011. WRA Specialist. Personal Communication.	[Self-compatible or apomictic? Unknown]
605	1999. Faden, R.B.. Floral attraction and floral hairs in the Commelinaceae. Annals of the Missouri Botanical Garden. 79: 46-52.	[Requires specialist pollinators? No] Commelinaceae flowers are chiefly entomophilous or autogamous. The main insect visitors are social and solitary bees and syrphid flies.
605	2009. Rivero, J./Almodovar, J.. The flower organs of Commelina erects. PHILICA.com. 162: <a href="http://www.philica.com/printer_article.php?article_id=162">http://www.philica.com/printer_article.php?article_id=162</a>	[Requires specialist pollinators? No] "The Commelinaceae do not produce any nectar and, according to Faden, 1992, this has the consequence "that the flowers rarely attract whole classes of pollinators, notably butterflies, moths, birds and bats". The only reward offered by the flower is thus its pollen and as a result, the main visitors of the flowers are social and solitary bees and syrphid flies." [family level description]
606	1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res">http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res</a>	[Reproduction by vegetative fragmentation? Yes] Reproduces vegetatively and by seed. It roots readily at the nodes of creeping stems, especially if cut or broken.
606	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Reproduction by vegetative fragmentation? Yes] "The plant is propagated mainly by seeds, stem cuttings and rooting from nodes and pieces (Fournet and Hammerton, 1991; Myint, 1994; Walker and Evenson, 1985a, 1985b). Plants may arise asexually when buds grow into autonomous, adventitiously erect leafy shoots, which later become separated from each other (Duke, 1985). Occasionally the buds may sprout and grow into erect shoots directly without undergoing a period of inactivity (Duke, 1985). Holm et al. (1977) noted that the plant roots readily at the nodes of the creeping stems and will do so especially when broken or cut. Farmers in the Windward Islands report that Commelina species may be intensified when cut with a weed whacker as stolons spread more extensively."
607	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Minimum generative time (years)? 1] Annual.
701	1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res">http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTtqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res</a>	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] Commelina diffusa occurs in cultivated lands, field borders, wet pastures, gardens, roadsides, and waste places.
701	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "The plant is propagated mainly by seeds, stem cuttings and rooting from nodes and pieces (Fournet and Hammerton, 1991; Myint, 1994; Walker and Evenson, 1985a, 1985b). Plants may arise asexually when buds grow into autonomous, adventitiously erect leafy shoots, which later become separated from each other (Duke, 1985). Occasionally the buds may sprout and grow into erect shoots directly without undergoing a period of inactivity (Duke, 1985). Holm et al. (1977) noted that the plant roots readily at the nodes of the creeping stems and will do so especially when broken or cut. Farmers in the Windward Islands report that Commelina species may be intensified when cut with a weed whacker as stolons spread more extensively."

702	2011. WRA Specialist. Personal Communication.	[Propagules dispersed intentionally by people? No] No evidence of intentional dispersal via the internet. [however an inquiry was made to the College of Tropical Agriculture, UH Manoa, for a propagule source]
703	2010. Caton, B.P./Mortimer, M./Hill, J.E./Johnson, D.E.. A practical field guide to weeds of rice in Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=LaJg-owvGdQC&amp;pg=PA24&amp;lpg=PA24&amp;dq=commelina+diffusa+%2B+%22contaminant%22&amp;so">http://books.google.com/books?id=LaJg-owvGdQC&amp;pg=PA24&amp;lpg=PA24&amp;dq=commelina+diffusa+%2B+%22contaminant%22&amp;so</a>	[Propagules likely to disperse as a produce contaminant? Yes] Seed contaminant. Weed of rice fields.
704	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Propagules adapted to wind dispersal? No] "Capsule oblong, trigonous, ca. 5 mm, 3-valved; posterior valve with 1 seed, indehiscent; other 2 valves each with 2 seeds, dehiscent. Seeds black, ovoid-globose, ca. 2 mm, reticulate."
705	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Propagules water dispersed? Yes] In cultivated areas the plant is spread by irrigation water and waterways. Animals may also spread the seeds.
706	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Propagules bird dispersed?] Capsule oblong, trigonous, ca. 5 mm, 3-valved; posterior valve with 1 seed, indehiscent; other 2 valves each with 2 seeds, dehiscent. Seeds black, ovoid-globose, ca. 2 mm, reticulate.
706	2009. Goddard, R.H./Webster, T.M./Carter, R./Grey, T.L.. Resistance of Benghal dayflower ( <i>Commelina benghalensis</i> ) seeds to harsh environments and the implications for dispersal by mourning doves ( <i>Zenaid macroura</i> ) in Georgia, U.S.A.. Weed Science. 57: 603	[Propagules bird dispersed?] The seeds of <i>Commelina benghalensis</i> are dispersed by mourning doves ( <i>Zenaid macroura</i> ) in Georgia, USA and retain viability.
707	2008. efloras.org. Flora of China Vol. 24 [online flora]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA, <a href="http://www.efloras.org">http://www.efloras.org</a>	[Propagules dispersed by other animals (externally)? No] Capsule. [no means of attachment]
708	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Propagules survive passage through the gut? ] In cultivated areas the plant is spread by irrigation water and waterways. Animals may also spread the seeds.
708	2009. Goddard, R.H./Webster, T.M./Carter, R./Grey, T.L.. Resistance of Benghal dayflower ( <i>Commelina benghalensis</i> ) seeds to harsh environments and the implications for dispersal by mourning doves ( <i>Zenaid macroura</i> ) in Georgia, U.S.A.. Weed Science. 57: 603	[Propagules survive passage through the gut? ] The seeds of <i>Commelina benghalensis</i> are dispersed by mourning doves ( <i>Zenaid macroura</i> ) in Georgia, USA and retain viability.
708	2011. WRA Specialist. Personal Communication.	[Propagules survive passage through the gut? Unknown]
801	1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, <a href="http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res">http://books.google.com/books?id=NLLDcrAyn2kC&amp;pg=PA31&amp;dq=commelina+diffusa&amp;hl=en&amp;ei=vlXRTqtE4OH2AWjpK29CQ&amp;sa=X&amp;oi=book_res</a>	[Prolific seed production (>1000/m2)? Yes] Each plant can produce approximately 1,000 seeds.
801	2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	"The mature aerial seeds of <i>C. benghalensis</i> are produced within 14 to 22 days after flower opening (Walker and Evenson 1985a) and in some instances e.g. the rice paddies of the Philippines, can produce in excess of 1,600 seeds/plant (Pancho, 1964) or even 12,000 seeds/m2 (Walker and Evenson 1985a). Whereas seeds grown from underground seeds are capable of producing 8,000 seeds/m2 (Walker and Evenson 1985a)."

- 802 1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, [http://books.google.com/books?id=NLLDcrAyn2kC&pg=PA31&dq=commelina+diffusa&hl=en&ei=vIXRTtqtE4OH2AWjpK29CQ&sa=X&oi=book\\_res](http://books.google.com/books?id=NLLDcrAyn2kC&pg=PA31&dq=commelina+diffusa&hl=en&ei=vIXRTtqtE4OH2AWjpK29CQ&sa=X&oi=book_res) [Evidence that a persistent propagule bank is formed (>1 yr)?] " In Japan, seeds that were buried in autumn in the soil and removed after different periods showed cyclic changes in dormancy. The innate dormancy in fresh seeds was overcome during the winter and was minimal in the field from early May, when most seedlings emerge. In late July, the seedlings cease to emerge and dormancy was caused by the high soil temperatures in the summer period and decreased with depth of burial. Any seeds emerging after July failed to set seed."
- 803 2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <http://www.ctahr.hawaii.edu/invweed/weedsHi.htm> [Well controlled by herbicides? ] Sensitive to hormone type herbicides. HAVO staff controlled honohono with foliar applications of triclopyr ester at 1%.
- 803 2007. Isacc, W.A.P./Brathwaite, R.A.I.. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933> [Well controlled by herbicides? ] "Wilson's (1981) review on the control of these weed species was directed towards finding suitable chemicals for their control in the early stages of growth, summarizing results of trials from different parts of the world. However, he suggested that since dense mats of plant material make chemical weed control of older plants difficult, removal by hand is the only effective control at that stage (Wilson, 1981).  
Currently, chemical control is still generally considered the only practical means of controlling large infestations of Commelina species (Ferrell et al., 2004; Webster et al., 2004; Webster et al., 2006). However, no single method of control seems to be effective for control of Commelina spp. in any crop. The difficulty lies in its ability for regeneration after attempted management even by cultural, mechanical or chemical control. An Integrated Management Strategy (IWM) is therefore suggested for the best control of this weed species. Webster et al., (2006) suggested a multi-component approach including an effective herbicide for successful management. Herbicides are not usually very effective against most Commelina species. The first verified resistance was registered in 1957, when *C. diffusa* biotypes were identified in the United States (Hilton, 1957). *Commelina elegans* has shown resistance to growth – regulator type herbicides (Ivens, 1967). CABI (2002) however, indicated that control using herbicides is variable depending on the herbicide, accuracy of leaf coverage and environmental conditions. Spraying with a selective or non – selective herbicide may work but repeated treatments are required for regrowth. Plants should not be under moisture stress when sprayed. Surfactants will improve penetration into the waxy-coated leaves.  
Wilson (1981) indicated that many standard herbicides have relatively low activity on species of Commelina. These include 2,4-D, propanil, butachlor, trifluralin and pendimethalin. Treatment with 2,4-D or MCPA at the pre-emergent stage has been shown to be ineffective and although a reasonable kill of very young seedlings can be obtained, the plants develop a rapid resistance with age (Ivens, 1967). Particular biotypes are resistant to 2,4-D and they may be cross resistant to other Group O / 4 herbicides (WeedScience.org, 2005). It has been found that one biotype of *C. diffusa* could withstand five times the dosage of a susceptible species (WeedScience.org, 2005)."
- 804 1999. Galinato, M.I./Moody, K./Piggin, C.M.. Upland rice weeds of south and southeast Asia. International Rice Research Institute, [http://books.google.com/books?id=NLLDcrAyn2kC&pg=PA31&dq=commelina+diffusa&hl=en&ei=vIXRTtqtE4OH2AWjpK29CQ&sa=X&oi=book\\_res](http://books.google.com/books?id=NLLDcrAyn2kC&pg=PA31&dq=commelina+diffusa&hl=en&ei=vIXRTtqtE4OH2AWjpK29CQ&sa=X&oi=book_res) [Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] Reproduces vegetatively and by seed. It roots readily at the nodes of creeping stems, especially if cut or broken.

---

804	2007. Isacc, W.A.P./Brathwaite, R.A.I. Commelina species: a review of its weed status and possibilities for alternative weed management in the tropics. AgroThesis. 5: 3-18. <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=10933</a>	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "The plant is propagated mainly by seeds, stem cuttings and rooting from nodes and pieces (Fournet and Hammerton, 1991; Myint, 1994; Walker and Evenson, 1985a, 1985b). Plants may arise asexually when buds grow into autonomous, adventitiously erect leafy shoots, which later become separated from each other (Duke, 1985). Occasionally the buds may sprout and grow into erect shoots directly without undergoing a period of inactivity (Duke, 1985). Holm et al. (1977) noted that the plant roots readily at the nodes of the creeping stems and will do so especially when broken or cut. Farmers in the Windward Islands report that Commelina species may be intensified when cut with a weed whacker as stolons spread more extensively. Wilson (1981) reports that the stems of Commelina species have a high moisture content and once it is well rooted the plant can survive for long periods without moisture. This fact is evident in young banana plantations in the Windward Islands where stems become dried and shrivelled due to the direct contact with solar radiation particularly in the dry season. However at the onset of rains and when the canopy of the banana closes stems regain moisture, re-establishes and rapidly begins to spread by runners which root at the nodes."
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

---