Taxon: Cassia ferruginea (Schrad.) DC. **Family:** Fabaceae

Common Name(s): são-joão-preto **Synonym(s):** Bactyrilobium ferrugineum Schrad.
Cassia brasiliana var. ferruginea (Schrad.) Vogel
Cathartocarpus ferrugineus (Schrad.) G.Don

Assessor: Chuck Chimera **Status:** Approved **End Date:** 7 Nov 2026

WRA Score: 0.0 **Designation:** L **Rating:** Low Risk

Keywords: Ornamental tree, Non-nodulating legume; Woody indehiscent pods; Physical seed dormancy; Autochory/zoochory dispersal

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y = -3, n = 0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	0 = low, 1 = intermediate, 2 = high (see Appendix 2)	High
202	Quality of climate match data	0 = low, 1 = intermediate, 2 = high (see Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y = 1, n = 0	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	?
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n = question 205	n
302	Garden/amenity/disturbance weed	y = 1*multiplier (see Appendix 2), n = 0	n
303	Agricultural/forestry/horticultural weed	y = 2*multiplier (see Appendix 2), n = 0	n
304	Environmental weed	y = 2*multiplier (see Appendix 2), n = 0	n
305	Congeneric weed	y = 1*multiplier (see Appendix 2), n = 0	y
401	Produces spines, thorns or burrs	y = 1, n = 0	n
402	Allelopathic		
403	Parasitic	y = 1, n = 0	n
404	Unpalatable to grazing animals		
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems	y = 1, n = 0	n
409	Is a shade tolerant plant at some stage of its life cycle	y = 1, n = 0	y

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y = 1, n = 0	y
411	Climbing or smothering growth habit	y = 1, n = 0	n
412	Forms dense thickets	y = 1, n = 0	n
501	Aquatic	y = 5, n = 0	n
502	Grass	y = 1, n = 0	n
503	Nitrogen fixing woody plant	y = 1, n = 0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y = 1, n = 0	n
601	Evidence of substantial reproductive failure in native habitat	y = 1, n = 0	n
602	Produces viable seed	y = 1, n = -1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation	y = 1, n = -1	n
607	Minimum generative time (years)		
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	y
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	POWO (2026). Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; https://powo.science.kew.org/. [Accessed 2 Nov 2026]	"The native range of this species is Brazil. It is a tree and grows primarily in the seasonally dry tropical biome." [No evidence]

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2026). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2026). Personal Communication	NA

201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	POWO (2026). Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; https://powo.science.kew.org/. [Accessed 2 Nov 2026]	"The native range of this species is Brazil. It is a tree and grows primarily in the seasonally dry tropical biome."

202	Quality of climate match data	High
	Source(s)	Notes
	POWO (2026). Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; https://powo.science.kew.org/. [Accessed 2 Nov 2026]	"The native range of this species is Brazil. It is a tree and grows primarily in the seasonally dry tropical biome."

Qsn #	Question	Answer
203	**Broad climate suitability (environmental versatility)**	**n**
	Source(s)	**Notes**
	NYBG Steere Herbarium. (2026). Cassia ferruginea (Schrad.) Schrad. ex DC. var. ferruginea. https://sweetgum.nybg.org/science/world-flora/monographs-details/?irn=20133&utm_source=chatgpt.com. [Accessed 2 Nov 2026]	"Distribution and Ecology - Wooded valley slopes, gallery-margins, cerradao, and surviving in capoeira or as a fence-tree, mostly 200-950 m, scattered around and within the basin of Rio Sao Francisco from centr. Minas Gerais n. to Sa. de Araripe in s. Ceara (lat. ±7-20°S), w. to the upper Tocatins in centr. Goias and reappearing locally on the Atlantic slope in s.-e. Bahia at 5-300 m, both in the coastal wet forest and in mata de cipo of the Paraguacu and Contas valleys; here and there cultivated for shade and ornament and locally spontaneous (as in Parque do Guara, D.F.).--Fl. X-II"
	POWO (2026). Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; https://powo.science.kew.org/. [Accessed 2 Nov 2026]	"The native range of this species is Brazil. It is a tree and grows primarily in the seasonally dry tropical biome. "
	Sunshine Seeds. (2026). Cassia ferruginea. https://www.sunshine-seeds.de/Cassia-ferruginea-54099p.html. [Accessed 2 Nov 2026]	"Zone: 11"

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	Source(s)	**Notes**
	POWO (2026). Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; https://powo.science.kew.org/. [Accessed 2 Nov 2026]	"The native range of this species is Brazil. It is a tree and grows primarily in the seasonally dry tropical biome."

205	**Does the species have a history of repeated introductions outside its natural range?**	**?**
	Source(s)	**Notes**
	Plants of India. (2026). Cassia ferruginea. https://theindianplants.org. [Accessed 2 Nov 2026]	"Distribution: Uttar Pradesh [Africa; South America: Brazil]. Remarks: Cultivated as ornamental plant, native of South America. "
	Lock, J. M. (1988). Cassia Sens.Lat. (Leguminosae: Caesalpinioideae) in Africa. Kew Bulletin, 43(2), 333-342	"The following species have been cultivated in Africa, usually in only one or two countries. They are here listed in the genera to which they have been assigned by Irwin & Barneby. *Cassia ferruginea (Schrader) Schrader ex DC."
	iNaturalist. (2026). Cassia ferruginea. https://www.inaturalist.org/taxa/139523-Cassia-ferruginea. [Accessed 2 Nov 2026]	Cultivated at Madeira: Funchal - Jardim Municipale and Nuwara Eliya, Sri Lanka
	WRA Specialist. (2026). Personal Communication	Limited cultivation outside native range

301	**Naturalized beyond native range**	**n**
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2026). Plants of Hawai'i. http://www.plantsofhawaii.org. [Accessed 2 Nov 2026]	No evidence

Qsn #	Question	Answer
302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	y
	Source(s)	Notes
	Brisbane City Council. (2026). Weed identification Tool - Golden shower tree - Cassia fistula. https://weeds.brisbane.qld.gov.au/weeds/golden-shower-tree. [Accessed 2 Nov 2026]	"In south-eastern Queensland, this species is occasionally a weed of riparian vegetation (i.e. along the Brisbane River in St. Lucia and along the Bremer River in Ipswich) and disturbed forests (i.e. on Coochiemudlo Island). It is also listed as a weed in Maroochy Shire on the Sunshine Coast., Golden shower (Cassia fistula) is also regarded as an environmental weed in the Northern Territory, where it is actively managed by community groups. It has also spread from cultivation on Koolan Island and in the King Leopold Range in Western Australia."
	Queensland Government. (2026). Weeds of Australia - Cassia fistula. https://keyserver.lucidcentral.org/weeds/data/media/Html/cassia_fistula.htm. [Accessed 2 Nov 2026]	[Cassia fistula is regarded as a weed in Australia, although considered Low Risk in the Hawaiian Islands] "This small tree is widely cultivated in the sub-tropical and tropical regions of Australia. Golden shower (Cassia fistula) has escaped cultivation and is regarded as an environmental weed in the Northern Territory and Queensland. It is actively managed by community groups in the Northern Territory."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 3 Nov 2026]	[No evidence] "Trees 6-20 m, potentially flowering as juvenile shrubs, when adult with rounded crown and trunk up to 6 dm diam, the glabrescent gray-brown, atro-castaneous or livid annotinous branchlets angulately ribbed, the hornotinous ones together with lf-stalks, lfts (except rarely the upper face) and axes of inflorescence varying from densely pilosulous to minutely puberulent with spreading, incumbent or rarely subappressed, commonly rufescent hairs up to 0.1-0.35 mm, the phyllotaxy spiral, the lvs bicolored, when dry dull brownish-olivaceous above, paler beneath"

402	Allelopathic	
	Source(s)	Notes

Qsn #	Question	Answer
	Takemura, T., Sakuno, E., Kamo, T., Hiradate, S., & Fujii, Y. (2013). Screening of the Growth-Inhibitory Effects of 168 Plant Species against Lettuce Seedlings. American Journal of Plant Sciences, 4(5): 1095-1104	[Potentially, Cassia ferruginea shows growth-inhibitory activity in a lettuce-seedling bioassay, but the paper does not establish that it is allelopathic in the ecological/field sense] "Table 1. EC50 values of the crude extracts from the aerial parts of 168 plant species." [n Table 1, the species is listed as Cassia ferraginea (spelling as in the paper), Fabaceae, with an EC_{50} of 6.21 mg fresh weight equivalent mL^{-1} (95% CI: 3.59–10.3) for inhibition of lettuce radicle elongation. That places it in the 5.01–10.0 mg F.W. eq. mL^{-1} category, i.e., it had detectable but not among the strongest inhibitory activity in the 168-species screen. The authors state that they used methanol extracts of aerial parts in a bioassay to screen for plant growth-inhibitory compounds with potential as natural herbicides/allelochemicals; they do not discuss C. ferruginea further, isolate its active compounds, or demonstrate allelopathy by living plants or in soil.]

403	Parasitic	n
	Source(s)	**Notes**
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 3 Nov 2026]	"Trees 6-20 m" [Fabaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	**Notes**
	WRA Specialist. (2026). Personal Communication	Unknown. Other species reported to be unpalatable to livestock

405	Toxic to animals	
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 5 Nov 2026]	"Known Hazards None known"
	WikiAves (2026). Golden rain - Cassia ferruginea. https://www.wikiaves.com.br/wiki/flora:chuva-de-ouro?s[]=beija. [Accessed 5 Nov 2026]	[Seeds potentially toxic, but effects on animals unknown] "These seeds are wrapped in a sweet pulp, which is known for its medicinal properties, although the seeds themselves are toxic and should not be ingested. "
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Born, F. de S., & Lima, I. M. de M. (2005). Desenvolvimento pós-embrionário de Anteos menippe (Hübner) (Lepidoptera, Pieridae) em Cassia ferruginea Shrad. (Caesalpinaceae), em laboratório. Revista Brasileira de Entomologia 49(4): 522-526	"Development stadia of Anteos menippe (Hübner) (Lepidoptera, Pieridae) on Cassia ferruginea Shrad. (Caesalpinaceae), in laboratory. In order to determine the duration of the post-embryonic development and its instars, eggs of Anteos menippe were collected from Cassia ferruginea leaves and were taken into the laboratory to register the dates of ecdysis. The post-embryonic development was (in days average ± standard error) 25.7 ± 0.4, the larval period 15.9 ± 0.3 represented 61.7% of the development and had five instars: L1 = 2.2 ± 0.1, L2 = 1.7 ± 0.2, L3 = 2.0 ± 0.1, L4 = 3.4 ± 0.1 and L5 = 6.4 ± 0.3. This last instar had an active phase (5.4 ± 0.3) and a prepupal phase (1 day long). The pupal period was 9.9 ± 0.2. The inactivity period (prepupa + pupa) 10.9 ± 0.2 days represented 42.2% of the postembryonic development, and the active phase 57.8%. The egg viability was 91.6% and the survival, starting from neonate larvae, was 59.8%."
	Martins, C. C., Machado, C. G., Martinelli-Seneme, A., & Zucareli, C. (2012). Método de colheita e superação de dormência na qualidade fisiológica de sementes de Cassia ferruginea. Semina: Ciências Agrárias, 33(2), 491-498	"In the field and after harvest, C. ferruginea seeds are often attacked by insects such as Zabrotes interstitialis, Pygiopachymerus lineola (Coleoptera: Bruchidae) and a Lepidoptera (Pyralidae) (Santos et al., 1994)" [These are seed predators of the tree itself, in its native range.]
	WRA Specialist. (2026). Personal Communication	Possibly. Cassia ferruginea is a confirmed host for several insect pests, notably seed beetles and a butterfly species. For pathogens, it is part of a genus known to host specific viruses, but direct confirmation of C. ferruginea as a host for these or other pathogens requires more detailed mycological or virological study.

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 5 Nov 2026]	"Known Hazards None known"
	WikiAves (2026). Golden rain - Cassia ferruginea. https://www.wikiaves.com.br/wiki/flora:chuva-de-ouro?s[]=beija. [Accessed 5 Nov 2026]	"These seeds are wrapped in a sweet pulp, which is known for its medicinal properties, although the seeds themselves are toxic and should not be ingested." [Possibly if ingested, but reports of seed toxicity are unconfirmed]
	WRA Specialist. (2026). Personal Communication	No direct evidence, but caution is warranted, and the seeds in particular should be avoided.
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	Soares, R. V. (1990). Fire in some tropical and subtropical South American vegetation types: an overview. Fire in the Tropical Biota, 63-81. Springer-Verlag, Berlin Heidelberg	Reported to occur in Subtropical Forest. No evidence was found that Cassia ferruginea creates or increases fire hazards in natural ecosystems. Although it is a deciduous tree that may contribute leaf litter during the dry season, there are no documented reports that it increases fuel loads, fire frequency, intensity, or spread. It is not known to be a fire-promoting species.

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 5 Nov 2026]	"Grows best in a sunny position"

Qsn #	Question	Answer
	Lemos Filho, J. P., Goulart, M. F., & Lovato, M. B. (2004). Chlorophyll fluorescence parameters in populations of two legume trees: Stryphnodendron adstringens (Mart.) Coville (Mimosoideae) and Cassia ferruginea (Schrad.) Schrad. ex DC.(Caesalpinoideae). Brazilian Journal of Botany, 27, 527-532	"The aim of this study was to investigate the photosynthetic performance in populations of two legume tree species, Stryphnodendron adstringens (Mimosoideae), typical from Cerrado, and Cassia ferruginea (Caesalpinoideae) from the Atlantic Rain Forest. The photosynthetic traits were assessed by measures of chlorophyll fluorescence in progenies of naturally pollinated plants from three populations of S. adstringens and a population of C. ferruginea. Plants of S. adstringens growing under similar conditions of C. ferruginea plants demanded higher light values for photosynthesis saturation, 600 µmol.m-2.s-1 and 350 µmol.m-2.s-1 respectively, and showed higher intrinsic photosynthetic efficiency of photosystem II, Fv/Fm of 0.814 versus 0.783 in C. ferruginea. The highest values of Fv/Fm observed in S. adstringens can explain the highest electron transport rates (ETR) obtained for this species. No significant differences were found among progenies from different C. ferruginea trees nor among populations of S. adstringens, and only in few cases, variation among progenies within populations were found for S. adstringens plants. The fact that fluorescence parameters distinguished species but not populations or most of progenies may be related to low intraspecific genetic variation of these chlorophyll fluorescence traits or due to lack of expression on genetic differences in plants under no stressful conditions."
	WRA Specialist. (2026). Personal Communication	Lemos Filho et al. (2004) investigated photosynthetic performance of C. ferruginea seedlings grown under reduced light. Plants were maintained at a photosynthetic photon flux density (PPFD) of 60 µmol m^{-2} s^{-1} during part of the experiment. Photosynthesis saturated at approximately 350 µmol m^{-2} s^{-1}, a lower light intensity than the comparison species, suggesting some capacity for low-light acclimation.
	Lorenzi, H. (2002). Brazilian Trees: Volume 1. 4th Edition. Instituto Plantarum De Estudos Da Flora; Brazil	Recommends sowing seeds in a partially shaded nursery bed, indicating that seedlings can establish under partial shade.

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	PlantSnap. (2026). Ferruginea senna (Cassia ferruginea). https://plantsnap.com/plant-care/cassia-ferruginea. [Accessed 5 Nov 2026]	"Cassia ferruginea is moderately difficult to grow. It requires regular watering and fertilization, as well as full sunlight. However, it can tolerate a range of soil types and pH levels."
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 5 Nov 2026]	"Succeeds in poor soils"
	Easyscape. (2026). Ironwood Cassia (Cassia ferruginea var. vellozoana). https://easyscape.com/species/Cassia-ferruginea-var.-vellozoana%28Ironwood-Cassia%29. [Accessed 5 Nov 2026]	The plant is valued for its ornamental qualities, including its vibrant floral display and its ability to thrive in a range of soil types. It is often used in urban landscaping, as a street tree, and in gardens for its shade and aesthetic appeal. Ironwood Cassia requires full sun to part shade and prefers medium or fast-draining loam or sandy soils."

411	Climbing or smothering growth habit	n
	Source(s)	**Notes**
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed]	"Trees 6-20 m"

412	Forms dense thickets	n
	Source(s)	**Notes**

Qsn #	Question	Answer
	Imaña-Encinas, J., Conceição, C. D. A., Santana, O. A., Imaña, C. R., & Paula, J. E. D. (2013). Distribuição diamétrica de um fragmento de Floresta Atlântica no município de Santa Maria de Jetibá, ES. Floresta, Curitiba, PR, 43(3): 385 - 394	"Table 1. Number of trees and basal area per species of the Atlantic Forest site at the Reserva Biológica Sítio Palmares." [4 Cassia ferruginea recorded per hectare]
	Oliveira Filho, A. T., Carvalho, D. A., Vilela, E. A., Curi, N., & Fontes, M. A. L. (2004). Diversity and structure of the tree community of a fragment of tropical secondary forest of the Brazilian Atlantic Forest domain 15 and 40 years after logging. Brazilian Journal of Botany, 27(4), 685-701	"Table 3. Tree species sampled on seven 1,125 m2 plots of secondary forest in Itambé do Mato Dentro, south-eastern Brazil, followed by brackets containing their classification into species guilds and the number of individuals recorded in the 15- and 40-year-old plots (N15 and N40), respectively." [No evidence. Three individuals of Cassia ferruginea recorded in the 15- and 40-year-old plots]
	WRA Specialist. (2026). Personal Communication	No evidence was found that Cassia ferruginea forms dense thickets; it typically grows as an individual canopy tree rather than forming dense, monospecific stands.

501	Aquatic	n
	Source(s)	**Notes**
	Canteiro, C. (2018). Cassia ferruginea. The IUCN Red List of Threatened Species 2018: e.T22484044A22484903. https://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T22484044A22484903.en. [Accessed 3 Nov 2026]	[Terrestrial] "This tree can grow up to 20 m (Bohrer collection number 85) and it is found mainly in the Atlantic Forest, Cerrado and Caatinga (Olson et al. 2001)."

502	Grass	n
	Source(s)	**Notes**
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 3 Nov 2026]	"Fabaceae Lindl. Caesalpinioideae DC."

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	Souza, H.N., Cardoso, I.M., Fernandes, J.M., Garcia, F.C., Bonfim, V.R., Santos, A C., Carvalho, A.F. & Mendonca, E.S. (2010). Selection of native trees for intercropping with coffee in the Atlantic Rainforest biome. Agroforestry systems, 80(1), 1-16	"Table 4 Leguminosae trees surveyed in seven agroforestry systems, Zona da Mata, Minas Gerais, Atlantic Coastal Rainforest, Brazil" [Table 4 inventories the legume trees in seven agroforestry systems in the Zona da Mata, Minas Gerais. It gives “No” in the Nodulation column for C. ferruginea, with superscript b, which the footnote assigns to Faria et al. (1984), “New nodulating legume trees from South-East Brazil” (New Phytol 98:317-328). The same table lists several close relatives in Caesalpinioideae as non-nodulating, including Senna macranthera, S. multijuga, Hymenaea courbaril and Copaifera langsdorffii. By contrast, the Mimosoideae and Papilionoideae species mostly nodulate]

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 3 Nov 2026]	"Trees 6-20 m"

601	Evidence of substantial reproductive failure in native habitat	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Canteiro, C. (2018). Cassia ferruginea. The IUCN Red List of Threatened Species 2018: e.T22484044A22484903. https://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T22484044A22484903.en. [Accessed 3 Nov 2026]	"São-joão-preto Cassia ferruginea has most recently been assessed for The IUCN Red List of Threatened Species in 2016. Cassia ferruginea is listed as Least Concern."

602	Produces viable seed	y
	Source(s)	**Notes**
	WikiAves (2026). Golden rain - Cassia ferruginea. https://www.wikiaves.com.br/wiki/flora:chuva-de-ouro?s[]=beija. [Accessed 3 Nov 2026]	"Cultivation The spread is mainly done by seeds, which require a treatment to break dormancy to germinate more efficiently. This process can be done through physical scarification."
	Regnier, L. (2020). Influence of mechanical scarification and open-field sowing procedure over Cassia ferruginea germination process. Journal of Horticulture and Plant Research 9: 30-38	"Seed dormancy implicates on delay and hampers seedling production. The increasing demand for greater seedlings production favors techniques that overcome seed dormancy. Cassia ferruginea is an economically relevant species that seeds present tegumentar dormancy, and there is no registry of the best sowing approach. In order to evaluate the influence of the mechanical scarification procedure, and open-field production method in the germination process of Cassia ferruginea, about five thousand seeds were evenly distributed between control and mechanical scarification with emery. The control group presented a low germination rate during the period of analysis. However, mean germination time and mean time to stabilize germination were remarkably lower to scarified seeds, also presenting higher germination rates and synchronization. The sporadic and low germination pattern observed in the control group is associated with ecological implications. The open-field production process presented significant differences to important indexes when compared to the greenhouse production process. Thus, mechanical scarification with emery is an appropriate method to overcome Cassia ferruginea seed dormancy, providing a faster, synchronized, and better seed lot exploitation. Favorable aspects of commercial seedling production. While the open-field production process was not adequate for seedling production."
	Martins, C. C., Machado, C. G., Martinelli-Seneme, A., & Zucareli, C. (2012). Método de colheita e superação de dormência na qualidade fisiológica de sementes de Cassia ferruginea. Semina: Ciências Agrárias, 33(2), 491-498	"The harvesting method of fruits of tree species should be adequate to obtain seeds of maximum physiological quality. When present, the dormancy of Cassia ferruginea seeds is due to seed coat impermeability to water. This research work viewed to find the best methods both for the harvesting and for the breaking of dormancy of seeds of that species. The experiment was conducted during two years. In the first, fruits shed from the mother plant and laying on the ground were picked and their seeds submitted to the following treatments: 1. control, 2. mechanical scarification of the seeds with sandpaper no. 220, 3. hot water for 5 minutes (initial and final temperatures of 82 and 69 ºC, respectively), 4. hot water for 15 minutes (initial and final temperatures of 82 and 51 ºC, respectively), 5. chemical scarification with H2SO4 (95%) for 20, 30, 40, 50. 60, 70, and 80 minutes. In the second year, seeds were submitted to treatments 2, 3, and 4 whereas acid scarification was applied for 30, 45, and 60 minutes. The results showed that seeds picked from the ground and those taken directly from the mother plant differ in their response to the dormancy breaking procedure. The results also showed that the seeds picked from the ground are better than those harvested directly from the plant and that, when dormant, the best results are attained when seeds are either submitted to mechanical scarification or chemical scarification with sulfuric acid for periods between 30 and 60 minutes."

603	Hybridizes naturally	

Qsn #	Question	Answer
	Source(s)	Notes
	WRA Specialist. (2026). Personal Communication	Unknown. Although natural hybridization is documented in other Cassia species,, no documented evidence was found that Cassia ferruginea naturally hybridizes with other species.

604	Self-compatible or apomictic	
	Source(s)	Notes
	Deus, F. F., Vale, V. S., Schiavini, I., & Oliveira, P. E. (2014). Diversity of reproductive ecological groups in semideciduous seasonal forests. Bioscience Journal 30 (6): 1885-1902	"Appendix 1 – Woody species observed in semideciduous forests remnants of the Triangulo Mineiro region and their reproductive ecological groups. The categories used for pollination systems were: SMI - small insects (small bees, flies and wasps); LGB - large bees; WIN - wind; VSI - very small insects; BUT - butterflies; BAT - bats; MOT - moths; BTL - beetles; NID - not identified. For the sexual systems the categories were: DIO: dioecious; MON: monoecious; HER: hermaphrodite; NID – not identified. And for fruit and seed dispersal systems, the categories were: ORN - birds; MAM - non-flying mammals; CHI - bats; ANE - wind, AUT - autochory; NID – not identified. *Allien species spontaneous in the region." [Unknown – Hermaphroditic flowers are present, but no species-specific evidence of self-compatibility or apomixis has been documented.]

605	Requires specialist pollinators	n
	Source(s)	Notes
	Deus, F. F., Vale, V. S., Schiavini, I., & Oliveira, P. E. (2014). Diversity of reproductive ecological groups in semideciduous seasonal forests. Bioscience Journal 30 (6): 1885-1902	"Appendix 1 – Woody species observed in semideciduous forests remnants of the Triangulo Mineiro region and their reproductive ecological groups. The categories used for pollination systems were: SMI - small insects (small bees, flies and wasps); LGB - large bees; WIN - wind; VSI - very small insects; BUT - butterflies; BAT - bats; MOT - moths; BTL - beetles; NID - not identified. For the sexual systems the categories were: DIO: dioecious; MON: monoecious; HER: hermaphrodite; NID – not identified. And for fruit and seed dispersal systems, the categories were: ORN - birds; MAM - non-flying mammals; CHI - bats; ANE - wind, AUT - autochory; NID – not identified. *Allien species spontaneous in the region." [C. ferruginea is classed as pollinated by large bees (LGB) with hermaphrodite flowers.]
	Perini, M., Dias, H. M., & Kunz, S. H. (2019). Sexual systems of plants in a Brazilian Montane Forest. Floresta e Ambiente, 26(spe1), e20180394	"Table 1. List of woody species registered in seed rain from November/2012 to October/2013 in Caparaó National Park, Ibitirama, Espírito Santo State, with its ecological characteristics of sexual system, pollination and dispersal syndromes, and fruit types." [Lists C. ferruginea as having a “ZO” (zoophily) pollination syndrome (Table 1). In that paper’s classification, zoophily refers to pollination by mammals and/or birds.]
	WRA Specialist. (2026). Personal Communication	No evidence has been found that specialist pollinators are required; pollination is achieved by insects, including bees.

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes

Qsn #	Question	Answer
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 7 Nov 2026]	"Propagation Seed - it has a hard seedcoat and may benefit from scarification before sowing to speed up germination. This can usually be done by pouring a small amount of nearly boiling water on the seeds (being careful not to cook them!) and then soaking them for 12 - 24 hours in warm water. By this time they should have imbibed moisture and swollen - if they have not, then carefully make a nick in the seedcoat (being careful not to damage the embryo) and soak for a further 12 hours before sowing. Sow the seed in a partially shaded position in a nursery seedbed. Germination can be expected within 24 - 40 days"
	WRA Specialist. (2026). Personal Communication	No evidence was found that Cassia ferruginea reproduces by vegetative fragmentation; reproduction is primarily by seeds.

607	Minimum generative time (years)	
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 7 Nov 2026]	"Plants have a moderate rate of growth, barely reaching a height of 2 metres within 2 years from seed" [Minimum generative time: unknown, since no age at first flowering is documented for Cassia ferruginea (flowering is Sept-Dec per the São Paulo forest institute), though related Brazilian cassioid trees such as Cassia brasiliana and Peltophorum dubium first reproduce at roughly 7-12 years in plantations]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	**Notes**
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 7 Nov 2026]	"Pod (little known) pendulous, slenderly rodlike 4.5-7 (acc. Mexia -8.8) dm x 1.7 cm x 1.4 cm, straight, a little laterally compressed, coarsely bluntly 2-carinate both ventrally and dorsally by greatly thickened double sutures, gently convex and obscurely corrugated laterally, the cross section oblately elliptic, the thin, early glabrate exocarp becoming skinlike, transversely cracked, livid-cas- taneous and lustrous, the woody endocarp ±0.8 mm thick and the interseminal septa only a trifle thinner, the locules ±6-7 mm long; seeds 1-seriate, turned broadside to the septa, each clothed in a pulpy envelope which contracts around it in drying as a loose coat separated from the locule-wall, in form (immature) like that of kindred spp., not seen ripe."
	WRA Specialist. (2026). Personal Communication	The species' large, heavy propagules lack the morphological adaptations (e.g., small size, burrs, or adhesive mucilage) needed for this type of dispersal, and there is no documented evidence of such a mechanism for Cassia ferruginea.

702	Propagules dispersed intentionally by people	y
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 7 Nov 2026]	"Highly ornamental when in bloom, it is used in landscaping"
	Easyscape. (2026). Ironwood Cassia (Cassia ferruginea var. vellozoana). https://easyscape.com/species/Cassia-ferruginea-var.-vellozoana%28Ironwood-Cassia%29. [Accessed 7 Nov 2026]	"The plant is valued for its ornamental qualities, including its vibrant floral display and its ability to thrive in a range of soil types. It is often used in urban landscaping, as a street tree, and in gardens for its shade and aesthetic appeal. "

703	Propagules likely to disperse as a produce contaminant	n

Qsn #	Question	Answer
	Source(s)	Notes
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 7 Nov 2026]	"Pod (little known) pendulous, slenderly rodlike 4.5-7 (acc. Mexia -8.8) dm x 1.7 cm x 1.4 cm, straight, a little laterally compressed, coarsely bluntly 2-carinate both ventrally and dorsally by greatly thickened double sutures, gently convex and obscurely corrugated laterally, the cross section oblately elliptic, the thin, early glabrate exocarp becoming skinlike, transversely cracked, livid-cas- taneous and lustrous, the woody endocarp ±0.8 mm thick and the interseminal septa only a trifle thinner, the locules ±6-7 mm long; seeds 1-seriate, turned broadside to the septa, each clothed in a pulpy envelope which contracts around it in drying as a loose coat separated from the locule-wall, in form (immature) like that of kindred spp., not seen ripe."
	WRA Specialist. (2026). Personal Communication	No evidence was found that propagules of Cassia ferruginea are likely to be dispersed as contaminants of agricultural produce or other harvested commodities.

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 7 Nov 2026]	"Pod (little known) pendulous, slenderly rodlike 4.5-7 (acc. Mexia -8.8) dm x 1.7 cm x 1.4 cm, straight, a little laterally compressed, coarsely bluntly 2-carinate both ventrally and dorsally by greatly thickened double sutures, gently convex and obscurely corrugated laterally, the cross section oblately elliptic, the thin, early glabrate exocarp becoming skinlike, transversely cracked, livid-castaneous and lustrous, the woody endocarp ±0.8 mm thick and the interseminal septa only a trifle thinner, the locules ±6-7 mm long; seeds 1-seriate, turned broadside to the septa, each clothed in a pulpy envelope which contracts around it in drying as a loose coat separated from the locule-wall, in form (immature) like that of kindred spp., not seen ripe." [Propagules of Cassia ferruginea are not adapted for wind dispersal; seeds are enclosed in heavy, woody, indehiscent pods and are dispersed primarily by gravity and animals.]

705	Propagules water dispersed	n
	Source(s)	Notes
	WRA Specialist. (2026). Personal Communication	No evidence of water dispersal for Cassia ferruginea: the species is classed as autochoric/zoochoric (São Paulo forest institute) or wind-dispersed (Deus et al. 2014), never hydrochoric, though it occurs in riparian forest and the related Cassia brasiliana is described as partly water-dispersed (Carvalho, Embrapa Espécies Arbóreas Brasileiras).

706	Propagules bird dispersed	n
	Source(s)	Notes
	Perini, M., Dias, H. M., & Kunz, S. H. (2019). Sexual systems of plants in a Brazilian Montane Forest. Floresta e Ambiente, 26(spe1), e20180394	"Table 1. List of woody species registered in seed rain from November/2012 to October/2013 in Caparaó National Park, Ibitirama, Espírito Santo State, with its ecological characteristics of sexual system, pollination and dispersal syndromes, and fruit types." [Table 1 (p. 5), classes C. ferruginea as zoochoric with fleshy fruit, but the paper doesn't say which animals disperse it. The São Paulo forest institute sheet lists autochoric and zoochoric dispersal and leaves the dispersal agents field blank]

707	Propagules dispersed by other animals (externally)	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	WFO (2026). Cassia ferruginea (Schrad.) DC. Published on the Internet; http://www.worldfloraonline.org/taxon/wfo-0000174024. [Accessed 7 Nov 2026]	"Pod (little known) pendulous, slenderly rodlike 4.5-7 (acc. Mexia -8.8) dm x 1.7 cm x 1.4 cm, straight, a little laterally compressed, coarsely bluntly 2-carinate both ventrally and dorsally by greatly thickened double sutures, gently convex and obscurely corrugated laterally, the cross section oblately elliptic, the thin, early glabrate exocarp becoming skinlike, transversely cracked, livid-cas- taneous and lustrous, the woody endocarp ±0.8 mm thick and the interseminal septa only a trifle thinner, the locules ±6 7 mm long; seeds 1-seriate, turned broadside to the septa, each clothed in a pulpy envelope which contracts around it in drying as a loose coat separated from the locule-wall, in form (immature) like that of kindred spp., not seen ripe." [No evidence was found that propagules of Cassia ferruginea are dispersed externally by animals; its woody, indehiscent pods lack apparent adaptations for attachment to animal surfaces.]

708	Propagules survive passage through the gut	y
	Source(s)	**Notes**
	Seibert, J. B. (2015). Padrão de frugivoria de Tapirus terrestris na Mata Atlântica do norte do Espírito Santo, Brasil. Master's thesis. Universiade Federal do Espírito Santo	"Table 1: Plant species (fruits) and fruiting period of native species, recorded in 325 fecal samples of Tapirus terrestris, in the Rebio Córrego do Veado (173 samples) and RPPN Recanto das Antas, (152 samples), in the north of Espírito Santo." [Likely yes. The study documents seed survival through the gut (seeds recovered intact in feces) and cites literature suggesting Cassia seeds may remain viable, but it does not report a direct germination experiment on C. ferruginea seeds recovered from tapir feces. So the evidence is strong for physical survival and suggestive–but not definitive–for germination viability of gut-passed seeds.]

801	Prolific seed production (>1000/m2)	
	Source(s)	**Notes**
	WRA Specialist. (2026). Personal Communication	Unknown - Although Cassia ferruginea produces relatively small seeds (approximately 10,600-14,400 seeds/kg), no quantitative evidence was found demonstrating annual seed production exceeding 1,000 seeds/m²

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	**Notes**
	Lima, M.de J.V.Jr., Hong, T. D., Arruda, Y. M. B. C., Mendes, A. M. S., & Ellis, R. H. (2014). Classification of seed storage behaviour of 67 Amazonian tree species. Seed Science and Technology, 42(3), 363-392	"Table 2. Information on thousand-seed weight (TSW), seed moisture content at shedding (MCS), seed shape, ecology and habitat and period of fruit or seed dispersal in relation to orthodox (O), recalcitrant (R) or intermediate (I) seed storage behaviour (SSB)." [Cassia ferruginea with orthodox seed storage]
	Tropical Plants Database, Ken Fern. (2026). Cassia ferruginea. https://tropical.theferns.info/viewtropical.php?id=Cassia%20ferruginea. [Accessed 5 Nov 2026]	[Potentially] "Seed - it has a hard seedcoat and may benefit from scarification before sowing to speed up germination. This can usually be done by pouring a small amount of nearly boiling water on the seeds (being careful not to cook them!) and then soaking them for 12 - 24 hours in warm water. By this time they should have imbibed moisture and swollen - if they have not, then carefully make a nick in the seedcoat (being careful not to damage the embryo) and soak for a further 12 hours before sowing. Sow the seed in a partially shaded position in a nursery seedbed. Germination can be expected within 24 - 40 days"

Qsn #	Question	Answer
	Regnier, L. (2020). Influence of mechanical scarification and open-field sowing procedure over Cassia ferruginea germination process. Journal of Horticulture and Plant Research 9: 30-38	[Soil seed longevity unknown] "Seed dormancy implicates on delay and hampers seedling production. The increasing demand for greater seedlings production favors techniques that overcome seed dormancy. Cassia ferruginea is an economically relevant species that seeds present tegumentar dormancy, and there is no registry of the best sowing approach. In order to evaluate the influence of the mechanical scarification procedure, and open-field production method in the germination process of Cassia ferruginea, about five thousand seeds were evenly distributed between control and mechanical scarification with emery. The control group presented a low germination rate during the period of analysis. However, mean germination time and mean time to stabilize germination were remarkably lower to scarified seeds, also presenting higher germination rates and synchronization. The sporadic and low germination pattern observed in the control group is associated with ecological implications. The open-field production process presented significant differences to important indexes when compared to the greenhouse production process. Thus, mechanical scarification with emery is an appropriate method to overcome Cassia ferruginea seed dormancy, providing a faster, synchronized, and better seed lot exploitation. Favorable aspects of commercial seedling production. While the open-field production process was not adequate for seedling production."
	WRA Specialist. (2026). Personal Communication	Unknown. Physical dormancy is evidence of a mechanism that could facilitate seed-bank persistence, but actual longevity in the soil remains undocumented for this species.

803	Well controlled by herbicides	
	Source(s)	**Notes**
	WRA Specialist. (2026). Personal Communication	Unknown. No evidence of herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	**Notes**
	WRA Specialist. (2026). Personal Communication	Unknown – No species-specific evidence was found establishing whether Cassia ferruginea tolerates or benefits from mutilation, cultivation, or fire, or whether it resprouts or coppices following damage.

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	**Notes**
	WRA Specialist. (2026). Personal Communication	Unknown

Summary of Risk Traits:

High-risk traits
Tropical/subtropical climate match and native range
Cassia fistula, a congener, is a weed in Australia
Shade tolerant at some life stage
Tolerates a wide range of soils
Produces viable seed
Planted intentionally by people as an ornamental
Seeds survive passage through animal guts
No specialist pollinators required

Low-risk traits
No evidence of naturalization or weediness
No spines, thorns or burrs; not parasitic or climbing
Does not form dense thickets
Not aquatic, grass, geophyte or nitrogen-fixing
No known fire hazard
Reproduces by seed only, not vegetative fragments
Large, heavy, woody pods with no adaptations for wind, water, bird, external-animal or contaminant dispersal
Not dispersed unintentionally
IUCN Least Concern; no reproductive failure in its native habitat