Taxon: Arachis hypogaea L. **Family:** Fabaceae

Common Name(s): avellana americana
goober
groundnut
peanut

Synonym(s): Arachis nambyquarae Hoehne
Lathyrus esquirolii H. Lév.

Assessor: Chuck Chimera **Status:** Approved **End Date:** 22 Mar 2024

WRA Score: -1.0 **Designation:** L **Rating:** Low Risk

Keywords: Annual, Naturalized, Widely Cultivated, Fodder, Self-Fertile

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y = -3, n = 0	y
102	Has the species become naturalized where grown?	y = 1, n = -1	y
103	Does the species have weedy races?	y = 1, n = -1	n
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	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		
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	y = 1, n = -1	n
405	Toxic to animals		
406	Host for recognized pests and pathogens	y = 1, n = 0	y
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	n

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	y = 1, n = -1	y
604	Self-compatible or apomictic	y = 1, n = -1	y
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation	y = 1, n = -1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
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	y
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	n
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y = 1, n = -1	n
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y = 1, n = -1	n
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	**Is the species highly domesticated?**	**y**
	Source(s)	**Notes**
	Ferguson, J. E. (1994). Seed biology and seed systems for Arachis pintoi. in Biology and Agronomy of Forage Arachis. CIAT Publication No. 240. CIAT, Cali, Colombia	"In A. hypogaea, however, reflecting a long period of domestication, the abscission layer has been lost, and most mature pods remain attached to the plant."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Feb 2024]	"Native to South America; now widely cultivated in warm countries throughout the world. Introduced in pre-Columbian times to West Indies and Mexico, in early post-Columbian times to Africa and eastern Asia and during the colonial period to Atlantic North America. Known only in cultivation (Duke, 1981a)."
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Peanut is native to South America. Archaeological records indicated its cultivation in the Peruvian desert oases between 300 and 2500 bc (Kaprovickas 1969 ; Weiss 1983) . The domesticated Arachis hypogaea is a natural, well-established allotetraploid (AABB) with 2 n = 40."

102	**Has the species become naturalized where grown?**	**y**
	Source(s)	**Notes**
	Wu, S. H., Chaw, S. M., & Rejmánek, M. (2003). Naturalized Fabaceae (Leguminosae) species in Taiwan: the first approximation. Botanical Bulletin of Academia Sinica, 44: 59-66	"Figure 4. Number of localities per species vs. minimum residence time of naturalized legumes in Taiwan." [Included among the naturalized taxa in this figure, but a later publication by the same authors lists Arachis hypogaea as "possibly naturalized"]
	Gann GD, Trotta LB, and Collaborators. (2001-2024). Floristic Inventory of South Florida Database Online. The Institute for Regional Conservation. Delray Beach, Florida. https://regionalconservation.org/ircs/database/database.asp. [Accessed 21 Feb 2024]	"Native Range: South America; widely cultivated and sometimes naturalized. Map of select IRC data for peninsular Florida SOUTH FLORIDA Occurrence: Present SOUTH FLORIDA Native Status: Not Native, Naturalized SOUTH FLORIDA Cultivated Status: Cultivated "
	Wu, S. H., Hsieh, C. F., & Rejmánek, M. (2004). Catalogue of the naturalized flora of Taiwan. Taiwania, 49(1), 16-31	"Table 2. List of possibly naturalized species" [Arachis hypogea included as possibly naturalized]

103	**Does the species have weedy races?**	**n**
	Source(s)	**Notes**
	New Zealand Plant Conservation Network. (2024). Arachis hypogaea. https://www.nzpcn.org.nz/flora/species/arachis-hypogaea/. [Accessed 21 Feb 2024]	"Habitat - Casual weed of urban areas" ... "Year naturalised - 2008" [The designation as a casual weed here does not appear to imply negative impacts"
	CABI. (2024). CABI Compendium Invasive Species. https://www.cabidigitallibrary.org/product/qi. [Accessed 21 Feb 2024]	No evidence

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**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Peanut is native to South America." ... "Peanut is now widely cultivated throughout the tropics, subtropics and warm temperate areas."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Feb 2024]	"Suitable for tropics, subtropics and warm temperate regions, grown from 40°S to 40°N latitude."

Qsn #	Question	Answer
202	Quality of climate match data	High
	Source(s)	Notes
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Feb 2024]	"Suitable for tropics, subtropics and warm temperate regions, grown from 40°S to 40°N latitude."

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Peanut is grown in the warm tropical, subtropical and subtemperate areas from 40°S to 40°N latitude in areas with annual mean temperature of 10.5-30°C, annual precipitation of 500-600 mm uniformly distributed through the growing season. It is frost sensitive and growth ceases below 15°C."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Feb 2024]	"Suitable for tropics, subtropics and warm temperate regions, grown from 40°S to 40°N latitude. Growing period 3 1/2-5 months ('Chico' matures in 80 days in South Texas). Frost sensitive. Thrives with 5 dm water in the growing season with most in mid-one-third of season. Grows on light, friable, well-drained sandy loams, but will grow in heavier soils. Ranging from Cool Temperate Moist through Tropical Thorn to Wet Forest Life Zones, peanut is reported to tolerate annual precipitation of 3.1 to 41.0 dm (mean of 162 cases 13.8 dm), annual mean temperature of 10.5°C to 28.5°C (mean of 161 cases 23.5°C), and pH of 4.3 to 8.7 (mean of 90 cases = 6.5) (Duke, 1981a). "

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Feb 2024]	"Native to South America; now widely cultivated in warm countries throughout the world. Introduced in pre-Columbian times to West Indies and Mexico, in early post-Columbian times to Africa and eastern Asia and during the colonial period to Atlantic North America."
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. http://www.plantsofhawaii.org. [Accessed 21 Feb 2024]	"Only found in cultivation"
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Peanut is native to South America."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Feb 2024]	"Native to South America; now widely cultivated in warm countries throughout the world. Introduced in pre-Columbian times to West Indies and Mexico, in early post-Columbian times to Africa and eastern Asia and during the colonial period to Atlantic North America."
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Peanut is now widely cultivated throughout the tropics, subtropics and warm temperate areas."

301	Naturalized beyond native range	y
	Source(s)	Notes

Qsn #	Question	Answer
	Gann GD, Trotta LB, and Collaborators. (2001-2024). Floristic Inventory of South Florida Database Online. The Institute for Regional Conservation. Delray Beach, Florida. https://regionalconservation.org/ircs/database/database.asp. [Accessed 21 Feb 2024]	"Native Range: South America; widely cultivated and sometimes naturalized. Map of select IRC data for peninsular Florida SOUTH FLORIDA Occurrence: Present SOUTH FLORIDA Native Status: Not Native, Naturalized SOUTH FLORIDA Cultivated Status: Cultivated "
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. http://www.plantsofhawaii.org. [Accessed 21 Feb 2024]	"Only found in cultivation"
	Wu, S. H., Hsieh, C. F., & Rejmánek, M. (2004). Catalogue of the naturalized flora of Taiwan. Taiwania, 49(1), 16-31	"Table 2. List of possibly naturalized species" [Arachis hypogea included as possibly naturalized]

302	Garden/amenity/disturbance weed	n
	Source(s)	**Notes**
	New Zealand Plant Conservation Network. (2024). Arachis hypogaea. https://www.nzpcn.org.nz/flora/species/arachis-hypogaea/. [Accessed 21 Feb 2024]	"Habitat - Casual weed of urban areas" [The designation as a "Casual weed" implies minimal, if any, negative impacts]
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. http://www.plantsofhawaii.org. [Accessed 21 Feb 2024]	"Only found in cultivation"
	CABI. (2024). CABI Compendium Invasive Species. https://www.cabidigitallibrary.org/product/qi. [Accessed]	No evidence

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	CABI. (2024). CABI Compendium Invasive Species. https://www.cabidigitallibrary.org/product/qi. [Accessed 21 Feb 2024]	No evidence

304	Environmental weed	n
	Source(s)	**Notes**
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. http://www.plantsofhawaii.org. [Accessed 21 Feb 2024]	"Only found in cultivation"
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2024). CABI Compendium Invasive Species. https://www.cabidigitallibrary.org/product/qi. [Accessed 21 Feb 2024]	No evidence

305	Congeneric weed	
	Source(s)	**Notes**
	CABI. (2024). CABI Compendium Invasive Species. https://www.cabidigitallibrary.org/product/qi. [Accessed 21 Feb 2024]	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Possibly. Impacts unspecified] "Arachis archeri - Weed of: Pastures; Arachis spp. - Weed of: Cereals"

401	Produces spines, thorns or burrs	n

Qsn #	Question	Answer
	Source(s)	Notes
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[No evidence] "Annual, erect, decumbent or prostrate herb, (6)-30- 80 cm tall with much-branched, nodulated tap root (Plates 1 and 2). Stipules pilose, 2-4 cm long. Leaves pinnate with two opposite pairs of leaflets (four-foliolate); petiole 1.5-7 cm long. Leaflets obovate or elliptic, 1-7 cm long, 0.7-3.2 cm wide, rounded or emarginate and mucronate at the apex, glabrous or sparsely pilose beneath (Plates 1 and 2). Flowers solitary axillary, papilionaceous, bisexual, yellow, sessile to shortly pedicellate (Plate 2); primary bracts ovate-lanceolate, 1-1.4 cm long, 4-5 mm wide, biapiculate; secondary bracts similar but bifid. Hypanthium 2-4 mm long, pubescent. Calyx tube 4-6 mm. Corolla yellow to golden yellow; standard spreading, apex emarginate; wings distinct, oblong to obliquely ovate, slender; keels distinct, long ovate, shorter than wings, inflexed, apex acuminate to beaked. Stamens 8-9. Ovary oblong; style longer than calyx; stigma terminal, small, sparsely pubescent. The tip of the ovary, bearing from 1 to 5 ovules, grows out from between the floral bracts, bearing with it the dried petals, calyx lobes and hypanthium; creating a unique floral structure – the peg (gynophore) becoming 1-20 cm long. The peg quickly turns down toward the soil and thrusts its tip with its ovules into the soil where the tip turns horizontally and develops into the pod (Plates 2 and 3). Fruit, an indehiscent, geocarpic, oblong, inflated legume, 2-5 × 1-1.3 cm, thick-walled, reticulate veined, with 1-4(−6) seeds (Plates 2 and 3). Seed oval to subovoid, 1-2 cm long, by 0.5-1 cm wide, with thin, smooth testa in variable colours – pink, red, purple, tan, brown, yellow, white or red and white, pink and white, brown and white, purple and white, or marked with small purple dashes or splashes on a base colour."

402	Allelopathic	
	Source(s)	Notes
	Casimiro, G. S., Mansur, E., Pacheco, G., Garcia, R., Leal, I. C. R., & Simas, N. K. (2017). Allelopathic activity of extracts from different Brazilian Peanut (Arachis hypogaea L.) cultivars on lettuce (Lactuca sativa) and weed plants. The Scientific World Journal, 2017: 1-7	[Extracts demonstrate allelopathic effects] "Peanut (Arachis hypogaea L.) is the fourth most consumed oleaginous plant in the world, producing seeds with high contents of lipids, proteins, vitamins, and carbohydrates. Biological activities of different extracts of this species have already been evaluated by many researchers, including antioxidant, antitumoral, and antibacterial. In this work, the allelopathic activity of extracts from different Brazilian peanut cultivars against lettuce (Lactuca sativa) and two weed plants (Commelina benghalensis and Ipomoea nil) was studied. Aerial parts, roots, seeds, and seed coats were used for the preparation of crude extracts. Seed extract partitioning was performed with n-hexane, dichloromethane, ethyl acetate, n-butanol, and aqueous residue. Germination and growth of hypocotyls and rootlets were evaluated after one and five days of incubation with plant extracts, respectively. Crude seed extract and its dichloromethanic partition displayed highest allelopathic activity. These results contribute for the study of new potential natural herbicides."

403	Parasitic	n
	Source(s)	Notes
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Annual, erect, decumbent or prostrate herb, (6)-30-80 cm tall with much-branched, nodulated tap root" [No evidence]

404	Unpalatable to grazing animals	n

Qsn #	Question	Answer
	Source(s)	Notes
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Foliage provides silage, forage and makes good fodder and hay for livestock. The oil cake provides a high-protein livestock feed. Peanut by-products fed to cattle include peanuts and peanut meal, peanut skins, peanut hulls, peanut hay, and silages (Hill 1952). Residual peanut hay is by far the most widely used peanut byproduct fed to beef cattle, and if it is properly harvested with minimal leaf shatter, it is comparable to good-quality grass hays in nutrient content. Peanut skins are often included in small quantities in cattle and pet foods, supplying both protein and energy."
	Heuzé V., Thiollet H., Tran G., Lebas F. (2017). Peanut forage. Feedipedia, a programme by INRAE, CIRAD, AFZ and FAO. https://www.feedipedia.org/node/695. [Accessed 21 Mar 2024]	"Peanut crop residues consist of leaves, stalks (vines) and remaining pods left in the field after the peanut harvest. There is a considerable variation in quality, depending on the harvest method, storage and on the proportions of plant materials included in the residue. Like other legume hays, peanut forage is subject to leaf shattering, which increases the proportion of stems and diminishes its nutritional value (Myer et al., 2010). Peanut crop residues can be fed fresh, dried or ensiled (Hill, 2002). Depending on the livestock production system, peanut crop residues can be used as a supplement or as a sole feed (Etela et al., 2011). The peanut crop yields large amounts of good quality forage and is an important, and sometimes major, provider of fodder wherever it is grown. Dual-purpose peanut varieties capable of producing appreciable quantities of both grain (peanuts) and good-quality hay are being developed and disseminated in Africa and Asia (Etela et al., 2011). In the USA, peanut hay is produced throughout the peanut belt, and is fed as a winter feed supplement to growing stocker cattle, beef replacement heifers, and wintering cow herds. In autumn, if harvesting conditions are good, large amounts of peanut hay can be baled in a few weeks, and the production costs are cheaper than for grass hays. In drought years, peanut often becomes the primary hay source for cattle farmers. However, it is only made on 25 to 40% of the total peanut acreage, as many peanut producers, particularly those who do not have to feed cattle, forget hay production and incorporate the residual vines as organic matter (Hill, 2002). In West Africa, peanut haulms are extensively fed to ruminants, especially in the dry season. Smallholder crop-livestock farmers consider forage and seed value with equal weightings. In the subhumid zone of West Africa, farmers prefer late-maturing cultivars to early-maturing types as the former provide more forage for livestock. Furthermore, the sale of forage is a major source of household income (Larbi et al., 1999). Crop residues such as peanut or pigeon pea haulms have been shown to provide up to 80% of livestock feed in densely populated areas of Nigeria (de Leeuw, 1997). In the Gambia, peanut hay is the traditional feed resource of choice, especially in urban areas. It is transported into peri-urban livestock facilities, where it is used in zero-grazing systems during the dry season of about nine months (Asaolu et al., 2010). India In India, peanut crop residues are widely used to feed livestock (NDDB, 2012). A study, conducted in villages with dairy enterprises in the Deccan Plateau, concluded that grains/pods and crop residues (sorghum and groundnut) almost equally contributed to the feed resource in mixed-crop livestock systems. In some villages, peanut hay comprised between 40 and 80% of the crop residues. In peanut-based crop-livestock systems, peanut hay was used for 8 months of the year in non-intensive dairy villages, and all year round in intensive dairy villages (Devi et al., 2000). Peanut is now rarely specifically grown for forage, as the seed crop is much more valuable, though this was common in the first half of the 20th century in the USA (Sheely et al., 1942; Gorbet et al., 1994; Myer et al., 2010). The rhizoma (or perennial) peanut (Arachis glabrata), a similar species that produces few seeds, is grown for this purpose (French et al., 2006; Hill, 2002). In the USA, there have been some promising efforts, but not yet conclusive, to use again peanut as a forage crop only (Myer et al., 2010)."

Qsn #	Question	Answer
405	Toxic to animals	
	Source(s)	**Notes**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[No evidence] "Foliage provides silage, forage and makes good fodder and hay for livestock. The oil cake provides a high-protein livestock feed."
	DiTomaso, J. M. (1998). List of Plants Reported to be Poisonous to Animals in the United States. Department of Soil, Crop and Atmospheric Sciences, Cornell University, Ithaca, NY.	[Possibly. Details of rare toxicity not provided in this publication] "Arachis hypogaea - Animals reported to be poisoned = cattle, swine, fowl; Frequency of reported cases = rare"
406	Host for recognized pests and pathogens	y
	Source(s)	**Notes**
	Hwang, S.-C., & Ko, W. H. (1974). Germination of Calonectria crotalariae Conidia and Ascospores on Soil. Mycologia, 66(6), 1053-1055	"Calonectria crotalariae is a soil-borne pathogen that causes root, peg and pod necrosis of Arachis hypogaea in Georigia and collar rot of Acacia koa and Carica papaya In Hawaii."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"For a rather monotonous listing of major pests and pathogens of peanut, see Duke (1981a). Fungal diseases include: Ascochoyta arachidis (leaf-spot), Aspergillus flavus (yellow mold), A. niger (crown rot), A. pulvarulentus (crown rot), Botrytis cinerea (blight), Cercospora arachidicola (early leafspot), Cercosporidium personatum (late leafspot), C. canescens, Colletotrichum arachidis (anthracnose), C. dematium (anthracnose), C. mangenoti (anthracnose), Diplodia arachidis (collar rot), D. gossypina (collar rot), Dothiorella arachidis (stem disease), Fusarium moniliforme, F. oxysporum, F. roseum, F. solani var. martii, Leptosphaerulina crassiasca (pepper spot and leaf scorch), Macrophomina phaeoli (wilt, root rot, and stem rot), Oidium arachidis (powdery mildew), Pestalotiopsis arachidis (leafspot), Phyllosticta arachidis and Ph. hypogaeae (leafspot), Puccinia arachidis (rust), Pythium debaryanum (pod rot), P. myriotylum (pod rot), P. ultimum, Rhizoctonia solani (root rot), Rhizopus arrhizus, R. oryzae, R. stolonifer, Rhizoctonia solani (all cause seed and preemergence seedling rot), Sclerotinia arachidis, S. minor (root and pod rot), S. sclerotiorum (root and pod rot), Sclerotium rolfsii (stem rot), Verticillium dahliae and V. albo-atrum (wilt and pod rot), Sphaceloma arachidis (scab), Cylindrocladium crotalariae (black rot of roots, pegs and pods), Phomopsis sojae (leaf and stem diseases), Diaporthe sojae, Phomopsiodes arachidis (stem diseases), Chalara elegans (black hull), Phoma arachidicola (web blotch), Cristulariella pyramidalis (zonate leafspot). Some strains of Aspergillus flavus and A. parasiticus, soilborne pathogens, may enter pods and kernels and produce toxic and carcinogenic aflatoxins. Bacterial diseases: Bacterium solanacearum, Phytomonas solanacearum, Xanthomonas solanacearum, Pseudomanas solanacearum, and brown bacterial leafspot. Viruses: abutilon mosaic, alfalfa mosaic, bean chlorotic ringspot, bean mosaic, bean necrosis, bean yellow mosaic, Brazilian tobacco streak, bunchy plant, chlorotic rosette, Euphorbia mosaic, Kromnek disease, leaf curl, marginal chlorosis, mosaic rosette, ringspot and mottle, Arachis virus I, rugose leafcurl, tobacco mosaic, southern sunnhemp mosaic, tomato spotted wilt, turnip mosaic, white clover mosaic and witches' broom, peanut stunt. Bud necrosis (TSWV) is serious disease in India and rosette can be devastating in Africa. Nematodes: Belonolaimus longicaudatus, Meloidogyne arenaria, M. hapla, Pratylenchus brachyurus. Of lesser importance are: Aphasmatylenchus straturratus, Aphelenchoides arachidis, Criconemella spp., Helicotylenchus spp., Hemicycliohora spp., Hoplolaimus spp., Longidorus spp., Meloidogyne javanica, Pratylenchus spp., Radopholus similes, Scutellonema spp., Telotylenchus spp., Trichodorus spp., Tylenchorhynchus spp., and Xiphinema spp. Insects: (1) Soil insects: lesser cornstalk borer,

		Elasmopalpus lignosellus Zeller; southern corn rootworm, Diabrotica undecimpunctata howardi Barker and also D. balteata; whitefringed beetles, Graphognathus spp.; burrowing bug, Panageaus bilineatus Say and P. congruus; white grub, Strigoderma arbicola Fabricius; bahiagrass borer, Derobrachus brevicollis Audinet-Serville; and wireworms Conoderus, Melanotus, Heteroderes and Cebrio. (2) Foliage insects: corn earworm, Heliothis zea Boddie; tobacco budworm, H. virescens Fabricius; fall armyworm, Spodoptera frugiperda J.E. Smith; beet armyworm, S. exigua Hubner; granulate cutworm, Agrotis subterranea (Fabricius); velvetbean caterpillar, Anticarsia gemmatalis Hubner; rednecked peanutworm, Stegasta bosqueella Chambers; the salt marsh caterpillar, Estigmene acrea; green cloverworm, Platypena scabra Fabricius; cabbage looper, Trichoplusia ni Hubner; tobacco thrips, Frankliniella fusca Hinds; potato leafhopper, Empoasca fabae Harris; threecornered alfalfa hopper, Spissistilus festinus Say; and the arachnid spidermites, Tetranychus urticae, T. cinnabarinus and T. desertorum Koch. (3) Storage insects: Indian meal moth, Plodia interpunctella Hubner; Mediterranean flour moth, Anagasta kuehniella Zeller; almond moth, Cadra cautella Walker (Ephestis); sawtoothed grain beetle, Oryzaephilus surinamensis L.; red flour beetle, Tribolium castaneum Herbst; and the confused flour beetle, T. confusum (duVal). Other insects: Aphis craccivora Koch vector of rosette and other viruses (worldwide), Holotrichia sp., white grubs (India), Amsacta sp. (India), Peridontopyge, Entermes, Anoplocnemis and Halticus (Senegal). Dicotyledonous parasites: Alectra abyssinica, A. senegalensis var. arachidis, A. vogelii, Striga asiatica, S. gesneriodies, S. hermonthica, S. lutea and S. senegalensis. Weeds: Ageratum conyzoides, Cenchrus echinatus, Cynodon dac, tylon, Cyperus rotundus, Digitaria longiflora, Digitaria sanguinalis, Echinochloa colonum, Eleusine indica, Portulaca oleracea, Rottboellia exaltata, Setaria pallidefusca, Sorghum halepense, Tribulus terrestris, and Tridax procumbens"
	Burns, R.M. & Honkala, B.H. (1990). Silvics of North America. Volume 2: Hardwoods. Agriculture Handbook 654. U.S. Department of Agriculture, Forest Service, Washington, DC.	[Arachis hypogaea is an alternate host of Calonectria crotalariae] "Koa seedlings grow rapidly. One month after a burn, koa seedlings were at least 2.5 cm (1 in) tall; after 3 months they ranged from 10 to 28 cm (4 to 11 in) tall, averaging about 13 cm (5 in) (41). On a cleared area at 500 m (1,700 ft) elevation, 1-year-old seedlings ranged from 0.6 to 4 m (2 to 13 ft) tall and averaged 2 m (6 ft). On favorable sites, seedlings attain 9 m (30 ft) in 5 years (37). Eight months after a fire on Kauai, koa regeneration was most common near fire-killed parent trees, and maximum height growth was 4.6 m (15 ft) (103). The abundance, distribution, growth, and mortality of koa on burned-over areas on Oahu were monitored over a 2.5-year period (73). During this time, seedling density declined dramatically. The root-crown fungus Calonectria crotalariae caused more than half of this mortality. On these sites the seedlings grew about 2.3 cm (1 in) per month. Koa did poorly when planted on abandoned sugarcane land on the windward coast of the island of Hawaii. Survival at age 6 years was 78 percent, but trees averaged only 3 m (10 ft) tall, and only 62 percent were judged vigorous. Tree form varied from good to poor, with 77 percent cull (101)."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	**Notes**
	Anderson, J. A. (1997). Milk, eggs and peanuts: food allergies in children. American Family Physician, 56(5), 1365-1374	"Peanuts, tree nuts, seafood and seeds, as well as milk and eggs, can cause anaphylaxis in highly allergic children, and reexposure to such foods presents the risk of life-threatening reactions." [allergenic to susceptible individuals]

Qsn #	Question	Answer
	Sen, M., Kopper, R., Pons, L., Abraham, E. C., Burks, A., & Bannon, G. A. (2002). Protein structure plays a critical role in peanut allergen stability and may determine immunodominant IgE-binding epitopes. The journal of immunology, 169(2), 882-887	[Allergenic to susceptible individuals] "Peanuts are widely used for the preparation of a variety of foods in the U.S. and are also relied on as a protein extender in developing countries. There has been an increase in the observed incidence of peanut allergies in children over the last 10 years. This is thought to be due to the increased popularity and use of peanut products by the population in the last decade and the introduction of peanut products to children's diets at an early age (4, 5, 6). Thus, it is increasingly common for the public to be exposed to an abundantly used and often disguised food such as peanuts. This has led to increasing rates of sensitization, accidental ingestion, anaphylaxis, and even death in peanut-allergic individuals."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	[Potential contaminants could be toxic] "Of greatest concern is possible contamination of damaged or spoiled seeds with the teratogenic, carcinogenic aflatoxins. Two principal toxins, aflatoxins B, and G, and their less toxic dihydro derivatives, aflatoxins B2 and G2 are formed by the aflatoxin producing moulds (Aspergillus flavus et al). Prevention of mould growth is the mainstay, there being no satisfactory way to remove the toxins from feed and foods (however, peanut oils are free of aflatoxins because of alkaline processing). LD50 for aflatoxin for sensitive organisms may be less than 1 mg/kg body weight. "Aflatoxin B1 appears to be the most potent hepatocarcinogen known." Rats receiving only 15 ppm aflatoxin in the diet have high cancer incidence (NAS, 1973). Arachin, with 4 antigens and conarachin with 2 antigens are also reported. "

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[No evidence from cultivation] "Peanut is now widely cultivated throughout the tropics, subtropics and warm temperate areas."

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	**Notes**
	Plants for a Future. (2024). Arachis hypogaea. https://pfaf.org/user/Plant.aspx?LatinName=Arachis+hypogaea. [Accessed 21 Mar 2024]	"It cannot grow in the shade."

Qsn #	Question	Answer
	Hang, A. N., McCloud, D. E., Boote, K. J., & Duncan, W. G. (1984). Shade Effects on Growth, Partitioning, and Yield Components of Peanuts 1. Crop Science, 24(1), 109-115	"Peanut (Arachis hypogaea L.) may have one or more periods during development when low solar radiation intensity is particularly detrimental to high yield. The present studies were conducted in the field to determine the effect of shade on vegetative growth, partitioning of assimilates and yield components of peanut. In a 2-year experiment, 75% shade was applied for 7, 10, 14, or 21 day periods during flowering, pegging, podding, and maturing phases. The objective was to determine which reproductive phase was most sensitive to low solar radiation intensity. Flower number, peg development, pod formation, and dry matter accumulation and partitioning were measured at regular sampling intervals. Shade during the peak flowering period reduced the number of flowers per plant and inhibited peg formation. Shade during the pegging and podding phases reduced total peg and pod number and reduced pod dry weight. Shade during the maturing phase reduced seed fill as shown by reduced shelling percentage and a lower number of fruits achieving mature pod status. On the average, over all stages, 75% reduction of light intensity decreased the growth rate of vegetative parts by 85%, the reproductive growth rate by 67%, and the total biomass growth rate by 67%. Shade prior to podding increased partitioning to vegetative growth, by 20%, whereas shade during the podding phase (83 to 104 days) increased dry matter partitioning to pods by 127%. Seventy-five percent reduction in solar radiation intensity reduced yield of Florunner peanuts significantly only when the duration was for 14 or 21 day periods. Podding was the phase in which yield was most sensitive to shade with a 30% reduction in fruit yield from shade during 83 to 104 days of age. The maturing phase was next in sensitivity to shade, which decreased yield primarily by decreasing seed fill in existing fruits. Twenty-one days of shade at flowering did not reduce final fruit yield, since the plants had time to recover from the loss of active flowers and subsequently bear flowers and produce a normal pod load."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"Grows on light, friable, well-drained sandy loams, but will grow in heavier soils."
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"It prefers light, friable, well-drained sandy loams enriched with gypsum or lime to prenet ‘pops’ empty shells, basaltic red or grey soils, but will grow in heavier soils in the pH range of 4.3- 8.7 with optimum range of 5.5-6.5."

411	Climbing or smothering growth habit	n
	Source(s)	**Notes**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Annual, erect, decumbent or prostrate herb, (6)-30-80 cm tall with much-branched, nodulated tap root"

412	Forms dense thickets	n
	Source(s)	**Notes**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[No evidence] "Annual, erect, decumbent or prostrate herb, (6)-30-80 cm tall with much-branched, nodulated tap root"

501	Aquatic	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Feb 2024]	[Terrestrial] "Suitable for tropics, subtropics and warm temperate regions, grown from 40°S to 40°N latitude. Growing period 3 1/2-5 months ('Chico' matures in 80 days in South Texas). Frost sensitive. Thrives with 5 dm water in the growing season with most in mid-one-third of season. Grows on light, friable, well-drained sandy loams, but will grow in heavier soils."

502	Grass	n
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch. [Accessed 21 Feb 2024]	"Genus: Arachis Section: Arachis Family: Fabaceae (alt. Leguminosae) Subfamily: Faboideae Tribe: Dalbergieae"

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[N-fixing herb] "Annual, erect, decumbent or prostrate herb, (6)-30- 80 cm tall with much-branched, nodulated tap root"

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"Annual ascending (Guaranian and sequential Peruvian) to somewhat longer-lived ascending, decumbent, or prostrate (Bolivian and Amazonan), geocarpic, glabrate to hirsute herbs with upright main or n-axes. Tap root with four series of spirally arranged lateral roots with abundant branching and usually heavily supplied with nodules. Root tip without epidermis and without root liars."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Peanut is native to South America. Archaeological records indicated its cultivation in the Peruvian desert oases between 300 and 2500 bc (Kaprovickas 1969 ; Weiss 1983) . The domesticated Arachis hypogaea is a natural, well-established allotetraploid (AABB) with 2 n = 40. Genetic evidence reveals that it possesses two sets of chromosomes from Arachis duranensis (A genome) and Arachis ipaensis (B genome) which naturally hybridised to form the tetraploid, Arachis mon ticola, the immediate wild antecessor of A. hypogaea (Guillermo et al. 2000) . It is likely that this domestication occurred in Paraguay or Bolivia which have the greatest diversity of wild varieties of Arachis species. Peanut is now widely cultivated throughout the tropics, subtropics and warm temperate areas."

602	Produces viable seed	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"All commercial peanuts are propagated from seed. Virginia-type (alternately branched) peanuts have a dormancy period; Spanish-Valencia types (sequentially branched) have little or no seed dormancy. Seedbed should be prepared, either on the flat, or widely ridged. Seed often treated with antifungal dressing before planting. In countries of advanced agriculture, peanuts are often grown in monoculture and by mechanized means. In many countries they are cultivated by hand and sometimes in mixed culture. The spacing and seed rate vary with growth rate vary with growth habit and production methods. Stands of 250,000 plants per hectare are sought in machine-drilled planting. For types planted by hand, however, much lower seed rates may be used. "

603	Hybridizes naturally	y
	Source(s)	**Notes**
	Nigam, S. N., Rao, V. R., & Gibbons, R. W. (1983). Utilization of natural hybrids in the improvement of groundnuts (Arachis hypogaea). Experimental Agriculture, 19(4), 355-359	"Groundnuts (Arac!iis hypogaea L.) are generally considered to be self-pollinated, but natural hybrids due to outcrossing have been observed in cv. Robut 33-1. Selections in segregating generations of these natural hybrids identified stable lines with large yield potentials in more than one environment. The role of natural hybrids in generating useful additional variability is discussed."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"In addition to the cultivated peanut, there are wild Arachis species known to be cross-compatible with cultivated peanuts and known to possess resistance to pests and diseases, including early and late leafspot and spidermites."

604	Self-compatible or apomictic	y
	Source(s)	**Notes**
	Smith, B. W. (1950). Arachis hypogaea. Aerial Flower and Subterranean Fruit. American Journal of Botany, 37(10), 802-815	"Natural self-pollination within the closed keel is the rule."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"Self-pollinating, occasionally outcrossed by bees (Duke, 1981a). "
	Nigam, S. N., Rao, V. R., & Gibbons, R. W. (1983). Utilization of natural hybrids in the improvement of groundnuts (Arachis hypogaea). Experimental Agriculture, 19(4), 355-359	"The cultivated groundnut is generally regarded to be self-pollinated (Smith, 1950). However, natural cross-pollination has been detected at levels ranging from O to 3. 9% depending on season, genotype and location (Bolhuis, 1951; Hammons, 1964; Culp et al., 1968; Gibbons and Tattersfield, 1969)."

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	Smith, B. W. (1950). Arachis hypogaea. Aerial Flower and Subterranean Fruit. American Journal of Botany, 37(10), 802-815	"Natural self-pollination is the rule. Insects including domestic bees do visit the flowers and rare cross-pollination probably occurs."
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"Self-pollinating, occasionally outcrossed by bees (Duke, 1981a)."

606	Reproduction by vegetative fragmentation	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"All commercial peanuts are propagated from seed."

607	Minimum generative time (years)	1
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"Although flowering may commence in 30 days, 80-150 days or more are required for fruit maturation."
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Annual, erect, decumbent or prostrate herb, (6)-30-80 cm tall with much-branched, nodulated tap root"

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	**Notes**
	Valls, J. F. M., & Pizarro, E. A. (1994). Collection of Wild Arachis Germplasm. In Biology and Agronomy of Forage Arachis. CIAT Publication No. 240. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia	"Seed set below ground also limits long-distance dispersal. The perimeter of an Arachis population may remain quite stable for decades."
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[No means of attachment] "Fruit, an indehiscent, geocarpic, oblong, infl ated legume, 2-5 × 1-1.3 cm, thick-walled, reticulate veined, with 1-4(−6) seeds (Plates 2 and 3). Seed oval to subovoid, 1-2 cm long, by 0.5-1 cm wide, with thin, smooth testa in variable colours – pink, red, purple, tan, brown, yellow, white or red and white, pink and white, brown and white, purple and white, or marked with small purple dashes or splashes on a base colour."

702	Propagules dispersed intentionally by people	y
	Source(s)	**Notes**
	Lim, T.K. (2012). Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	"Peanut is now widely cultivated throughout the tropics, subtropics and warm temperate areas."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	**Notes**
	Valls, J. F. M., & Pizarro, E. A. (1994). Collection of Wild Arachis Germplasm. In Biology and Agronomy of Forage Arachis. CIAT Publication No. 240. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia	"Seed set below ground also limits long-distance dispersal. The perimeter of an Arachis population may remain quite stable for decades. Dispersal in Arachis can only occur vegetatively through spread by rhizomes or stolons, or when seed is transported in eroded soil during heavy rains or floods. This may be just a few hundred meters over several years."

Qsn #	Question	Answer
704	**Propagules adapted to wind dispersal**	n
	Source(s)	**Notes**
	Valls, J. F. M., & Pizarro, E. A. (1994). Collection of Wild Arachis Germplasm. In Biology and Agronomy of Forage Arachis. CIAT Publication No. 240. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia	"Seed set below ground also limits long-distance dispersal. The perimeter of an Arachis population may remain quite stable for decades. Dispersal in Arachis can only occur vegetatively through spread by rhizomes or stolons, or when seed is transported in eroded soil during heavy rains or floods. This may be just a few hundred meters over several years."

705	**Propagules water dispersed**	y
	Source(s)	**Notes**
	Valls, J. F. M., & Pizarro, E. A. (1994). Collection of Wild Arachis Germplasm. In Biology and Agronomy of Forage Arachis. CIAT Publication No. 240. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia	"Dispersal in Arachis can only occur vegetatively through spread by rhizomes or stolons, or when seed is transported in eroded soil during heavy rains or floods. This may be just a few hundred meters over several years."
	Krapovickas, A., Gregory, W. C., Williams, D. E., & Simpson, C. E. (2007). Taxonomy of the genus Arachis (Leguminosae). Bonplandia, 16, 7-205	"Fluvial dispersion must be very important, such that many of the species have a distribution associated with the watershed of the great Paraguay, Uruguay and Parana or Sao Francisco Rivers. The species generally live near watercourses, in places where the water evidently reaches only during the higher floods. In A. hypogaea the mature fruits can float, such that in India a harvesting technique was developed in which the peanut field is flooded, the soil is disturbed and the fruits float to the surface where the wind carries them to a comer where they are collected (Rushy 1901). It is conceivable that in this same manner fruits of wild species could be transported by water during floods."
	WRA Specialist. (2024). Personal Communication	May occur rarely during flooding

706	**Propagules bird dispersed**	n
	Source(s)	**Notes**
	Krapovickas, A., Gregory, W. C., Williams, D. E., & Simpson, C. E. (2007). Taxonomy of the genus Arachis (Leguminosae). Bonplandia, 16, 7-205	[Wild Arachis species may be rarely dispersed by birds. No evidence for Arachis hypogaea] "Dispersal by animals should not be discarded. Birds, hogs, rodents and armadillos seek out the wild fruits. Although upon eating the seeds they destroy the embryo, the possibility exists of whole fruits being carried to their burrows."

707	**Propagules dispersed by other animals (externally)**	n
	Source(s)	**Notes**
	Krapovickas, A., Gregory, W. C., Williams, D. E., & Simpson, C. E. (2007). Taxonomy of the genus Arachis (Leguminosae). Bonplandia, 16, 7-205	[Wild Arachis species may be rarely dispersed by externally. No evidence for Arachis hypogaea] "Dispersal by animals should not be discarded. Birds, hogs, rodents and armadillos seek out the wild fruits. Although upon eating the seeds they destroy the embryo, the possibility exists of whole fruits being carried to their burrows."

Qsn #	Question	Answer
708	**Propagules survive passage through the gut**	n
	Source(s)	**Notes**
	Krapovickas, A., Gregory, W. C., Williams, D. E., & Simpson, C. E. (2007). Taxonomy of the genus Arachis (Leguminosae). Bonplandia, 16, 7-205	[Seed caching may result in dispersal of intact seeds of wild Arachis species. No evidence for Arachis hypogaea] "Dispersal by animals should not be discarded. Birds, hogs, rodents and armadillos seek out the wild fruits. Although upon eating the seeds they destroy the embryo, the possibility exists of whole fruits being carried to their burrows."

801	**Prolific seed production (>1000/m2)**	
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	[High seed densities may be achieved in cultivated settings] "Yields have increased remarkably in the United States and other countries since 1951 and now range from 2000 to 6000 kg/ha. Woodruff (1981) notes experimental yields up to 7,000 kg/ha. Yields with poorer conditions and cvs range from 400-1500 kg/ha. Shelling percentage: 75-80% (sequenial types) and 60-80% (alternate types). World production in 1975 from 19,384,000 hectares was 19,117,000 MT (with shell) averaging 986 kg/ha. Asia produced 11,128,000 MT, averaging 866 kg/ha. Africa produced 5,116,000 MT, averaging 743 kg/ha. North America produced 1,936,000 MT, averaging 2,559 kg/ha; South America, 879,000 MT, averaging 1,128 kg/ha; Oceania, 35,000 MT averaging 1,228 kg/ha and Europe, 23,000 MT averaging 2,202 kg/ha. India was the highest production country with 6,600,000 MT; China second with an estimated 2,791,000 MT; U.S. third with 1,750,000 MT; Senegal fourth with 1,130,000 MT and South Africa fifth with 1,100,000 MT. In 1979, the world low production yield was 400 in Mozambique, international production yield 1,016, and the world high production yield was 3,783 in Malaysia (FAO, 1980a). Bogdan (1977) reports DM yields of 4.5, 5.1, 3.9 and 2.8 MT/ha respectively, 87, 94, 101, and 108 days after sowing. These yields could be trebled in those areas of the tropics where three crops could be grown per year. "

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	n
	Source(s)	**Notes**
	Manik, A., Meena, M. K., Amaregouda, A., & Surekha, S. (2023). Assessment of viability, quality and deterioration in stored groundnut seeds. The Pharma Innovation Journal 2023; SP-12(9): 625-629	[Viability declines under natural conditions] "When groundnuts are harvested in the summer, the problem of seed viability loss is more severe and after 4-5 months of storage in such products, roughly 50% viability might be lost (Vijayalakshm and Malabasari, 2018) [52]. Seeds containing high levels of oil tend to lose their germination and vigour in a short period of time despite the precautions taken while harvesting and drying (Nautiyal et al., 1990) [31]. The viability and vigour of groundnut seeds quickly deteriorate under high temperatures and high relative humidity. That is widely known that the viability and vigour of the seeds in storage are positively impacted by the selection of proper seed forms, storage containers, and storage conditions."

803	**Well controlled by herbicides**	
	Source(s)	**Notes**
	Duke, J. A. (1983). Arachis hypogaea. Handbook of Energy Crops. https://www.hort.purdue.edu. [Accessed 21 Mar 2024]	"Weeds are controlled by cultivation and by pre- and post-planting applications of selective herbicides."

Qsn #	Question	Answer
	Askew, S. D., Wilcut, J. W., & Cranmer, J. R. (1999). Weed management in peanut (Arachis hypogaea) with flumioxazin preemergence. Weed Technology, 13(3), 594-598	[Unknown. Preemergence and postemergence herbicides are use to control weeds in Arachis hypogaea crops]. (1) Flumioxazin and norflurazon were used to control broad-leaved weeds in peanut crops. Arachis injury was observed at one location; however yields were not reduced.

804	Tolerates, or benefits from, mutilation, cultivation, or fire	n
	Source(s)	**Notes**
	York, A. C., Wilcut, J. W., Swann, C. W., Jordan, D. L., & Walls, F. R. (1995). Efficacy of imazethapyr in peanut (Arachis hypogaea) as affected by time of application. weed Science, 43(1), 107-116	"Cultivation can damage Arachis hypogaea and enhance soil-borne disease problems."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	Unknown

Summary of Risk Traits:

Arachis hypogaea (peanut) is a nitrogen fixing annual, erect, decumbent, or prostrate herb native to South America. It is widely cultivated for its edible seeds throughout the tropics, subtropics, and warm temperate areas of the world, and occasionally naturalized where grown. It is not currently reported to be naturalized in the Hawaiian Islands, and although able to self-seed, is unlikely to spread significantly from cultivated areas.

High Risk / Undesirable Traits
• Broad climate suitability
• Able to persist and potentially spread in regions with tropical and subtropical climates
• Reported to be naturalized in Florida, Taiwan and possibly elsewhere, but not in the Hawaiian Islands to date
• Potential host of Calonectria crotalaria, a fungal pathogen of Acacia koa and other plant crop pathogens
• Peanuts and products may be allergenic to susceptible individuals
• Tolerates many soil types
• Reproduces by seeds
• Hybridizes with other Arachis species
• Self-pollinating
• An annual, capable of reaching maturity in one growing season
• Seeds dispersed through intentional cultivation and potentially by water

Low Risk Traits
• A domesticated crop, primarily found only in cultivated settings with no reports of significant negative impacts where grown
• Unarmed (no spines, thorns, or burrs)
• Provides fodder for livestock
• Grows in full sun and high light environments (dense shade may inhibit ability to spread)
• Not reported to spread vegetatively
• Seed set below ground limits the potential for long-distance or accidental dispersal
• Seeds may lose viability quickly under natural conditions