Taxon: Solanum chacoense Bitter

Family: Solanaceae

Common Name(s): wild potato

Synonym(s): Solanum arnezii Cárdenas
Solanum bitteri Hassl.
Solanum boergeri Bukasov
Solanum calvescens Bitter
Solanum emmeae Juz. & Bukasov

Assessor: Chuck Chimera **Status:** Approved **End Date:** 21 May 2024

WRA Score: 13.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Tuberous Herb, Naturalized, Shade-Tolerant, Spreads Vegetatively, Vertebrate-Dispersed Seeds

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	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		
303	Agricultural/forestry/horticultural weed		
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	y = 1, n = 0	n
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)		
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	y
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	y
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y = 1, n = -1	y
702	Propagules dispersed intentionally by people	y = 1, n = -1	y
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal	y = 1, n = -1	n
705	Propagules water dispersed		
706	Propagules bird dispersed	y = 1, n = -1	y
707	Propagules dispersed by other animals (externally)	y = 1, n = -1	n
708	Propagules survive passage through the gut	y = 1, n = -1	y
801	Prolific seed production (>1000/m2)		
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	y = 1, n = -1	y
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
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	[WIld potato not domesticated] "Solanum chacoense is one of the most variable and widely distributed wild potato species. It is most similar morphologically to S. kurtzianum and S. malmeanum." ... "Throughout its wide range, S. chacoense has been found growing with S. kurtzianum, S. microdontum, S. tarijense, and S. spegazzinii. Hybrids have been reported between several of these species. Solanum chacoense was the first tuber-bearing species investigated for introgressive hybridization. Hawkes (1962) considered that hybridization with S. microdontum in northwest Argentina might be responsible for its adaptation to higher altitudes."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2024). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2024). 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
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Distribution (Fig. 32). Southern Peru (Dept. Puno) to central Argentina (Provinces of La Pampa and Buenos Aires), Paraguay, Uruguay, and southern Brazil; in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m."

202	Quality of climate match data	High
	Source(s)	Notes
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Distribution (Fig. 32). Southern Peru (Dept. Puno) to central Argentina (Provinces of La Pampa and Buenos Aires), Paraguay, Uruguay, and southern Brazil; in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m."

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes

Qsn #	Question	Answer
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Solanum chacoense is considered to be the most adaptable and aggressive South American wild Solanum species (Hawkes 1990; Hawkes and Hjerting 1969). It occupies a broad range of geographic regions and altitudes, ranging from 0 to 3,200 m. Solanum chacoense is very vigorous (Leue and Peloquin 1980) and is reported to have heat and drought tolerance (Hawkes 1990; Veilleux et al. 1997), allowing it to survive in a broader environmental range than many other wild Solanum species. Genes for adaptation to low-input environments are likely to be present in S. chacoense (Buso et al. 1999a), contributing to its success in natural environments."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Distribution (Fig. 32). Southern Peru (Dept. Puno) to central Argentina (Provinces of La Pampa and Buenos Aires), Paraguay, Uruguay, and southern Brazil; in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m. It has also escaped from cultivation outside its native range in the United States, Europe, Australia, and New Zealand."
	Faccenda, K. (2024). Report of 24 new naturalized weeds across the islands of Hawai'i. Bishop Museum Occasional Papers 156: 71-110	[East Maui] "Several hundred wild potato plants were found during roadside surveys on East Maui along Kawehi Pl. growing on an unmowed roadside, and as a weed under pomegranate trees cultivated on a nearby property, where it was being mowed by the property owner (Figure 19). These were initially assumed to be domestic potato (Solanum tuberosum), but this identification was corrected thanks to iNaturalist user @plantperson7654. "

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"It has also escaped from cultivation outside its native range in the United States, Europe, Australia, and New Zealand."
	Faccenda, K. (2024). Report of 24 new naturalized weeds across the islands of Hawai'i. Bishop Museum Occasional Papers 156: 71-110	[East Maui] "Material examined. MAUI: Kula, Kawehi Pl, roadside weed in unmowed area, appears naturalized, growing on roadside and under pomegranate trees in orchard, not intentionally planted as the owners of the olive trees have been mowing/weed whacking it, 1012 m, 20.736255, - 156.327185, 24 Oct 2022, K. Faccenda 2781."

301	Naturalized beyond native range	y
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"It has also escaped from cultivation outside its native range in the United States, Europe, Australia, and New Zealand."

Qsn #	Question	Answer
	Faccenda, K. (2024). Report of 24 new naturalized weeds across the islands of Hawai'i. Bishop Museum Occasional Papers 156: 71-110	"Several hundred wild potato plants were found during roadside surveys on East Maui along Kawehi Pl. growing on an unmowed roadside, and as a weed under pomegranate trees cultivated on a nearby property, where it was being mowed by the property owner (Figure 19). These were initially assumed to be domestic potato (Solanum tuberosum), but this identification was corrected thanks to iNaturalist user @plantperson7654." ... "Material examined. MAUI: Kula, Kawehi Pl, roadside weed in unmowed area, appears naturalized, growing on roadside and under pomegranate trees in orchard, not intentionally planted as the owners of the olive trees have been mowing/weed whacking it, 1012 m, 20.736255, - 156.327185, 24 Oct 2022, K. Faccenda 2781."
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"Solanum chacoense Bitter is native to South America, but has also naturalized in some other countries outside its original habitat due to its invasive weedy nature. It has naturalized in the Shimla, Himachal hill forest after its escape from the wild potato germplasm collection at the Central Potato Research Institute, Shimla (Himachal Pradesh). It is an important source of genes for charcoal rot, late blight, various types of nematode etc. and could be an important genetic resource in future."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"We report the occurrence of naturalized populations of the wild potato Solanum chacoense in seven sites in southern Australia, eastern China, England, New Zealand, the eastern United States, central Peru, and east-central Argentina."

302	Garden/amenity/disturbance weed	
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Weed of: Pastures" [Identified as a crop weed of unidentified impacts]
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Potential weed, but occurs near site of introduction] "Wild potato contains about 100 species that are native to the Americas from the southwestern United States to central Chile and adjacent Argentina, Uruguay, Paraguay, and southern Brazil. We report the occurrence of naturalized populations of the wild potato Solanum chacoense in seven sites in southern Australia, eastern China, England, New Zealand, the eastern United States, central Peru, and east-central Argentina. Modeling similar climatic niches on the basis of the distribution of S. chacoense from South America shows that observations of naturalized S. chacoense overlap with predicted areas. A literature review reveals that although S. chacoense possesses traits typical of an invasive species, all populations presently appear to be contained near their site of introduction"

303	Agricultural/forestry/horticultural weed	
	Source(s)	**Notes**

Qsn #	Question	Answer
	De Egea, J., Mereles, F., del Carmen Pena-Chocarro, M., & Céspedes, G. (2016). Checklist for the crop weeds of Paraguay. PhytoKeys, 73: 13-92	"Paraguay, a country whose economy is based mainly on agriculture and livestock for export, has experienced a major expansion in mechanized crops during the last few decades. Despite being heavily dependent on agriculture, Paraguay has very limited research on crop weeds, in spite of these having a high economic impact on production. This work aims to update and enhance the knowledgebase on the most common weeds affecting productive fields throughout the different ecoregions of Paraguay. We present here the first checklist of crop weeds for the country, which includes a total of 256 taxa (189 species, 10 subspecies, 54 varieties and 3 forms), with the most species-rich families being Poaceae and Asteraceae followed by Malvaceae, Amaranthaceae, Fabaceae and Solanaceae. The list includes three new records for the country. Synonyms, distribution details within Paraguay, habit and a voucher specimen are provided for each taxon." [Solanum chacoense is identified as a crop weed, but no impacts are described]
	Mas, M. T., Verdú, A. M. C., Kruk, B. C., de Abelleyra, D., Guglielmini, A. C., & Satorre, E. H. (2010). Weed communities of transgenic glyphosate-tolerant soyabean crops in ex-pasture land in the southern Mesopotamic Pampas of Argentina. Weed Research, 50(4), 320-330	"Table 1 Species names, family names, morphotype, Raunkiaer life forms, observed phenology, and constancy for weeds recorded in 12 soyabean fields surveyed at Estancia Centella between 11 March and 20 April 2005" [Solanum chacoense identified as one of several weeds of soyabeans. No impacts are described in this publication]
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Reported as a crop weed. Impacts not quantified] "It is a weed in cultivated fields within its natural range from southern Peru (Ochoa 1999; as Solanum yungasense Hawkes) and in adjacent Bolivia (Hawkes and Hjerting 1989; Ochoa 1990), south to Argentina, southern Brazil, Paraguay, and Uruguay (Hawkes and Hjerting 1969). It grows from sea level up to 3,700 m in a variety of disturbed habitats (Hawkes and Hjerting 1969, 1989; Ochoa 1990, 1999). In Argentina, it is reported to be an agricultural weed in a variety of crops (Valverde 2002). Although S. chacoense is not listed as an invasive species (Invasive Species Specialist Group 2008), it is listed as a weed (Randall 2002)."

304	Environmental weed	n
	Source(s)	**Notes**
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	[No evidence] "A literature review reveals that although S. chacoense possesses traits typical of an invasive species, yet all populations, in these sites, appear to be confined to their site of introduction. In fact, the spread of this species in Shimla appears to be due to congenial climatic conditions and its ability to defend itself against enemies, as well as it has large ecological tolerance, which enables it to live in other ecosystems and compete with the indigenous taxa (Reinhard et al., 2010)."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

Qsn #	Question	Answer
305	Congeneric weed	y
	Source(s)	**Notes**
	USDA-APHIS. (2010). Federal Noxious Weed List. https://www.aphis.usda.gov/sites/default/files/weedlist.pdf. [Accessed 15 May 2024]	"Federal Noxious Weed List Effective as of December 10, 2010" [Includes tampicense, Solanum torvum & Solanum viarum]
	Hawaii Administrative Rules. (1992). Title 4. Department of Agriculture. Subtitle 6. Division of Plant Industry. Chapter 68 Noxious Weed Rules. https://hdoa.hawaii.gov/wp-content/uploads/2012/12/Chapter-68.pdf. [Accessed 15 May 2024]	Hawaii State-listed Noxious Weeds include: Solanum carolinense L., Solanum elaeagnifolium Cav., Solanum robustum Wendl. & Solanum torvum Sw.
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	Solanum laxum. Solanum linnaeanum, Solanum mauritianum, Solanum nigrum, Solanum tampicense, Solanum viarum listed as weeds of natural areas

401	Produces spines, thorns or burrs	n
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	[No evidence] "Herbs 0.5-2 m tall, erect. Tubers typically borne singly at the end of each stolon. Stems 3.5-10 mm in diameter at base of plant, unwinged or with wings up to 2 mm wide, green to purple or green and purple mottled, glabrous to densely short-pubescent. Pseudostipules 3-20 mm long, pubescent with hairs like those of the stem. Leaves 10-39 cm long, 6-24 cm wide, odd-pinnate, green, glabrous to densely short-pubescent adaxially and abaxially with hairs like those of the stems; petioles 1-4 cm long, glabrous to densely short pubescent; lateral leaflet pairs 4-7, often subequal except for the most proximal 1 or 2 pairs, which are greatly reduced in size; distalmost lateral leaflets 2.7-9 cm long, 0.9-3.5 cm wide, narrowly to broadly ovate to elliptic, apex acute to acuminate, base typically oblique, rounded to truncate, petiolules 0-5 mm long; terminal leaflet 4.1-9.4 cm long, 0.9-4.3 cm wide, ovate to elliptic, apex acute to acuminate, base truncate to attenuate; interjected leaflets 0-20, ovate to orbicular, sessile to short petiolulate. Inflorescences 2-15 cm long, usually forked, with 8-25 flowers, the axes pubescent with hairs like those of the stem; peduncle 2.5-10.5 cm long; pedicels 12-23 mm long in flower and fruit, articulated at or slightly distal to the midpoint. Calyx 3-5 mm long, with hairs like those of the stem; lobes 1-4 mm long, acute to long attenuate, acumens 0.5-2 mm long. Corolla 1.6-3.7 cm in diameter, pure white to creamy yellow-white adaxially and abaxially, deeply stellate to pentagonal, acumens 2-5 mm long. Anthers 5-7 mm long. Style 8-15 mm long, exceeding stamens by 3-6 mm; stigma clavate to capitate. Fruit 1.5-2 cm in diameter, globose to slightly ovoid, green to green with purple streaks when ripe, often with scattered white dots, glabrous."

402	Allelopathic	
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	Unknown. Extracts from other Solanum species demonstrate allelopathic effects.

Qsn #	Question	Answer
403	Parasitic	n
	Source(s)	Notes
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Herbs 0.5-2 m tall, erect." [No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Unknown, but chemical that deter insect browsing may also make plants unpalatable to browsing mammals] "Solanum chacoense produces a unique array of glycoalkaloids. In addition to producing the glycoalkaloids commonly found in wild Solanum species, chaconine and solanine, S. chacoense produces rare glycoalkaloids such as leptines, demissine, and tomatine (Lawson et al. 1993; Sinden et al. 1986). Production of high levels of these glycoalkaloids reduces feeding, survival, and reproductive ability of herbivorous insect pests such as the Colorado potato beetle (Hawkes 1990; Rangarajan et al. 2000; Sinden et al. 1986; Yencho et al. 2000), which are capable of rapidly defoliating potato plants."

405	Toxic to animals	
	Source(s)	Notes
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[No evidence of toxicity to animals, but chemicals produced to deter herbivory may have a toxic effect if consumed] "Solanum chacoense produces a unique array of glycoalkaloids. In addition to producing the glycoalkaloids commonly found in wild Solanum species, chaconine and solanine, S. chacoense produces rare glycoalkaloids such as leptines, demissine, and tomatine (Lawson et al. 1993; Sinden et al. 1986). Production of high levels of these glycoalkaloids reduces feeding, survival, and reproductive ability of herbivorous insect pests such as the Colorado potato beetle (Hawkes 1990; Rangarajan et al. 2000; Sinden et al. 1986; Yencho et al. 2000), which are capable of rapidly defoliating potato plants."
	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	n
	Source(s)	Notes

Qsn #	Question	Answer
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Insect Resistance. Solanum chacoense produces a unique array of glycoalkaloids. In addition to producing the glycoalkaloids commonly found in wild Solanum species, chaconine and solanine, S. chacoense produces rare glycoalkaloids such as leptines, demissine, and tomatine (Lawson et al. 1993; Sinden et al. 1986). Production of high levels of these glycoalkaloids reduces feeding, survival, and reproductive ability of herbivorous insect pests such as the Colorado potato beetle (Hawkes 1990; Rangarajan et al. 2000; Sinden et al. 1986; Yencho et al. 2000), which are capable of rapidly defoliating potato plants. Disease Resistance. Solanum chacoense appears to be particularly rich in disease resistance genes. Resistance to soft rot, caused by bacterial species in the genus Pectobacterium (formerly Erwinia), has been reported in S. chacoense. This resistance would prevent tubers from rotting in the soil while they are dormant (Bains et al. 1999; Hawkes 1990; Rousselle-Bourgeois and Priou 1995). Solanum chacoense also contains major genes for resistance to Verticillium species, which causes early dying, (Concibido et al. 1994; Lynch et al. 1997) and Ralstonia solanacearum (Smith) Yabuuchi, the causal agent of bacterial wilt (Hawkes 1990). Resistance to virus diseases would prevent a decline in plant vigor that would reduce a plant's competitive ability in a natural environment over time. High levels of resistance to major virus diseases such as potato virus Y and potato leafroll virus have been found in S. chacoense (Brown and Thomas 1994; Hawkes 1990; Valkonen 1997). Solanum chacoense is also reported to be resistant to root knot nematode, Meloidogyne incognita (Kofoid and White) Chitwood, as well as common scab caused by Streptomyces scabies (Lambert and Loria) (Hawkes 1990)."
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"Usually the plants forming colonies are found growing luxuriantly and are invariably free from diseases and pests. Recently it was also reported that plants of S. chacoense contained acetylated glycoalkaloids (leptine) providing high resistance against the potato beetle (Wink, 1988). So, no insect-pest can be seen feeding on its foliage."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	**Notes**
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	[May contain unsafe levels of glycoalkaloids] "While S. chacoense is an important source of genes responsible for resistance to a number of diseases and insect-pests, it has not been much used in the breeding of improved varieties, because of two reasons. Firstly, it is a diploid species and the cultivated potato is tetraploid and hence direct crosses were not possible Secondly, it contains a new glycoalkaloid or high glycoalkaloids posing a health hazard. This has been the case with a variety called Lenape, which had S. chacoense as one of the parent and was found to exceed the safety levels of glycoalkaloids and had to be withdrawn from the commercial cultivation (Wink, 1988)."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[No evidence of toxicity to humans, but chemicals produced to deter insect herbivory may have a toxic effect if consumed] "Solanum chacoense produces a unique array of glycoalkaloids. In addition to producing the glycoalkaloids commonly found in wild Solanum species, chaconine and solanine, S. chacoense produces rare glycoalkaloids such as leptines, demissine, and tomatine (Lawson et al. 1993; Sinden et al. 1986). Production of high levels of these glycoalkaloids reduces feeding, survival, and reproductive ability of herbivorous insect pests such as the Colorado potato beetle (Hawkes 1990; Rangarajan et al. 2000; Sinden et al. 1986; Yencho et al. 2000), which are capable of rapidly defoliating potato plants."

Qsn #	Question	Answer
	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
	Wagstaff, D.J. (2008). International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m." [No evidence that this occurs in fire prone areas of contributes to fire risk]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"in a wide diversity of habitats, in full sun or in dense shade"
	Ochoa, C. M. (1990). The Potatoes of South America: Bolivia. Cambridge University Press, Cambridge, UK	"It occurs typically along arroyos, borders of irrigation channels and canals, sandy-clay river banks, and in abandoned lands or cultivated fields of cotton and maize, as a weed in gardens and orchards, and in thickets of Crotalaria and Cleome, where it is frequently associated with Physalis, Convolvulus, and various species of grasses. It also occurs under the shade of Alnus and Podocarpus." ... "Numerous large colonies of S. chacoense are found along the forested banks of the Paraguay River in the vicinity of Villeta, and in the vicinity of Lake Ipacarai, near Asuncion. In these areas, the plants typically grow in the organically rich soil that occurs under the shade of large palms, such as Arecastrum romanzoffianum."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"plants up to 1.3 m tall, growing among grasses in buffer strip around and sometimes invading fields of soybeans and corn, mostly in sunny areas but sometimes in shade of mature trees, invading several agricultural fields over an extent of about 1 mile"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	**Notes**
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"It generally grows in areas with very high rainfall (over 1000 mm/year) and prefers soils rich in organic matter, well drained with pH from 6.0-6.5."
	Ochoa, C. M. (1990). The Potatoes of South America: Bolivia. Cambridge University Press, Cambridge, UK	"Numerous large colonies of S. chacoense are found along the forested banks of the Paraguay River in the vicinity of Villeta, and in the vicinity of Lake Ipacarai, near Asuncion. In these areas, the plants typically grow in the organically rich soil that occurs under the shade of large palms, such as Arecastrum romanzoffianum."

Qsn #	Question	Answer
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Unlikely to be substrate or soil limited] "Solanum chacoense is considered to be the most adaptable and aggressive South American wild Solanum species (Hawkes 1990; Hawkes and Hjerting 1969). It occupies a broad range of geographic regions and altitudes, ranging from 0 to 3,200 m. Solanum chacoense is very vigorous (Leue and Peloquin 1980) and is reported to have heat and drought tolerance (Hawkes 1990; Veilleux et al. 1997), allowing it to survive in a broader environmental range than many other wild Solanum species."

411	Climbing or smothering growth habit	n
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Herbs 0.5-2 m tall, erect. Tubers typically borne singly at the end of each stolon. Stems 3.5-10 mm in diameter at base of plant, unwinged or with wings up to 2 mm wide, green to purple or green and purple mottled, glabrous to densely short-pubescent."

412	Forms dense thickets	n
	Source(s)	**Notes**
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[No evidence where naturalized] "Persistent naturalized populations of S. chacoense have become established in widespread localities in North and Central America, Europe, Asia, Australia, and New Zealand, with S. tuberosum in Africa and Hawaii. The results show that the S. chacoense escapes are within their bioclimatic niche. The U.S., Australian, Argentinean, Chinese, and New Zealand populations of S. chacoense grow about plant breeding stations and most certainly were introduced as part of breeding and evaluation programs. The other site in England is at a botanical garden known to cultivate scores of different wild potato species. The New Zealand population might have been introduced as early as the early 1960s when this species was studied there (Pandey 1962)."
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	[No evidence] "in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m."

501	Aquatic	n
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	[Terrestrial] "in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m."

Qsn #	Question	Answer
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 15 May 2024]	"Genus: Solanum Subgenus: Potatoe Section: Petota Family: Solanaceae Subfamily: Solanoideae Tribe: Solaneae"

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	USDA-APHIS. (2010). Federal Noxious Weed List. https://www.aphis.usda.gov/sites/default/files/weedlist.pdf. [Accessed 15 May 2024]	"Genus: Solanum Subgenus: Potatoe Section: Petota Family: Solanaceae Subfamily: Solanoideae Tribe: Solaneae"

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	""“Herbs 0.5-2 m tall, erect. Tubers typically borne singly at the end of each stolon."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Solanum chacoense typically produces an extensive mass of long stolons (Leue and Peloquin 1980). This would allow a single plant to spread underground as long as tubers survive until they overcome dormancy and complete another growing season. Consequently, even if a founder plant is destroyed, its offspring several meters away could survive."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Solanum chacoense typically produces vigorous plants that flower profusely and over an extended period of time (Leue and Peloquin 1980). The flowers are highly male and female fertile (Leue and Peloquin 1980)."
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	[No evidence] "Southern Peru (Dept. Puno) to central Argentina (Provinces of La Pampa and Buenos Aires), Paraguay, Uruguay, and southern Brazil; in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m. It has also escaped from cultivation outside its native range in the United States, Europe, Australia, and New Zealand."

602	Produces viable seed	y
	Source(s)	**Notes**

Qsn #	Question	Answer
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"It flowers and bears berries in abundance with a high percentage of viable seed setting. It also bears small sized tubers underground. The author believed that the monkeys (Macaca mullata) and langurs (Semnopithecus entellus) consume the mature berries near maturity and it is through their faecal matter seeds are dropped on the ground in different parts and after the break of dormancy the seeds germinate in high percentage, may be that the digestive enzymes help in high per cent germination."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Prolific Sexual Reproduction and Potential Long- Distance Seed Dispersal. Solanum chacoense typically produces vigorous plants that flower profusely and over an extended period of time (Leue and Peloquin 1980). The flowers are highly male and female fertile (Leue and Peloquin 1980)."

603	Hybridizes naturally	
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"A natural hybrid between S. kurtzianum and S. chacoense was described by Briicher (1962) as S. ruiz-lealii, and this was accepted by Hawkes & Hjerting (1969) and Hawkes (1990). Briicher (1966) later argued against this hybrid origin, because one of the putative parents has never been reported from the province of Mendoza. Raimondi et al. (2005) examined the hypothesis of hybridization by phenetic analyses of morphological and molecular data and cytological analyses of interspecific hybrids. They concluded that S. ruiz-lealii is not a recent natural hybrid of S. kurtzianum x S. chacoense but originated by divergence of S. chacoense or by hybridization between S. chacoense and another unnamed taxon and proposed maintaining the species status of S. ruiz-lealii."
	Miller, J. T., & Spooner, D. M. (1996). Introgression of Solanum chacoense (Solanum sect. Petota): Upland Populations Reexamined. Systematic Botany, 21(4), 461-475	"In summary, our study provides no support for the hypothesis of hybridization or introgression of S. chacoense and S. microdontum. Studies of widespread natural introgression may be difficult to support in sect. Petota because of the similarity of many of its component taxa. Also, morphological and molecular support of hybridization can have various alternative explanations including convergence, retention of ancestral characters, and hybridization with species not here examined. Rieseberg and Wendel (1993) showed difficulties in detecting introgression: 1) hybridization is more likely between closely related species; 2) closely related species likely have fewer species-specific morphological and molecular markers, and 3) the likelihood of detecting hybridization decreases over time because the hybrid becomes "diluted" by possible further introgression with other species, mutation, and extinction of parents. All of these complicating factors could very well occur in Solanum sect. Petota."

604	Self-compatible or apomictic	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Hosaka, K., & Hanneman, R. E. (1998). Genetics of self-compatibility in a self-incompatible wild diploid potato species Solanum chacoense. 1. Detection of an S locus inhibitor (Sli) gene. Euphytica, 99, 191-197	[A variant is self-compatible] "A self-compatible (SC) variant of a wild diploid potato species, Solanum chacoense, which is normally self-incompatible (SI), was investigated for the nature and genetics of self-compatibility. It was crossed with a SI cultivated diploid potato species, S. phureja. The F1 progeny segregated SC vs. SI. Diallel crosses were made among 15 F1's. Self-compatibility was tested in a selfed family of a parental SC variant and in sibmated and selfed families of F1 progeny. All the data suggest that there is a single dominant gene (Sli) with sporophytic action inhibiting S gene expression in the pollen. Plants having a 'Sli' gene, produce pollen which is compatible to its own parent and plants with similar S genes. The 'Sli' gene has been maintained in a heterozygous condition through eight selfing generations (S8) implying that dominant homozygotes might be associated with lethality."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Certain genotypes may be self-compatible] "In addition, although most wild Solanum species, including S. chacoense, are self-incompatible (Hawkes 1990), S. chacoense is the only wild Solanum species in which a self incompatibility inhibitor has been documented (Hosaka and Hanneman 1998). The loss of self-incompatibility is conditioned by a single dominant gene found in some S. chacoense genotypes. Consequently, if a single plant carrying the self-incompatibility inhibitor gene escapes, it would be capable of perpetuating itself by self-pollination."

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Calyx 3-5 mm long, with hairs like those of the stem; lobes 1-4 mm long, acute to long attenuate, acumens 0.5-2 mm long. Corolla 1.6-3.7 cm in diameter, pure white to creamy yellow-white adaxially and abaxially, deeply stellate to pentagonal, acumens 2-5 mm long. Anthers 5-7 mm long. Style 8-15 mm long, exceeding stamens by 3-6 mm; stigma clavate to capitate."
	Ramsay, G., & Bryan, G. (2011). Solanum. In Wild Crop Relatives: Genomic and Breeding Resources (pp. 259-271). Springer, Berlin, Heidelberg	[Generic description] "Solanum species are generally pollinated by bees. Flowers are pentamerous and usually radially symmetrical but sometimes zygomorphic and without floral nectaries, thus providing only a pollen reward for pollinators."

606	Reproduction by vegetative fragmentation	y
	Source(s)	**Notes**
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Solanum chacoense typically produces an extensive mass of long stolons (Leue and Peloquin 1980). This would allow a single plant to spread underground as long as tubers survive until they overcome dormancy and complete another growing season. Consequently, even if a founder plant is destroyed, its offspring several meters away could survive."

607	Minimum generative time (years)	
	Source(s)	**Notes**
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Time to maturity not specified. Probably 1-2 years] "Solanum chacoense typically produces vigorous plants that flower profusely and over an extended period of time (Leue and Peloquin 1980). The flowers are highly male and female fertile (Leue and Peloquin 1980)."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Heenan, P. B., de Lange, P. J., Cameron, E. K., & Parris, B. S. (2008). Checklist of dicotyledons, gymnosperms, and pteridophytes naturalised or casual in New Zealand: additional records 2004–06. New Zealand Journal of Botany, 46(2): 257-283	"NOTES: Cultivation escape or garden Discard. Scattered plants among gardens and disused soil heap in the vicinity of the Canterbury agricultural Science Centre and along the banks of the Liffey Stream, Lincoln. Probably established as a Cultivation escape or garden Discard from potato breeding research being conducted at Lincoln (T. Conner, Crop & Food Research, pers. comm. 2005)."

702	Propagules dispersed intentionally by people	y
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"It has also escaped from cultivation outside its native range in the United States, Europe, Australia, and New Zealand."

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"in a wide diversity of habitats, in full sun or in dense shade, in dry or moist areas, among shrubs, in scrub or thorn forests or savannas, near the seashore, in moist subtropical forests (Plate 2D), on rocky slopes, in cultivated fields (Plate 2A), banana plantations, or roadsides; 0-3700 m." [Could possibly be dispersed as a seed contaminant when occurring in cultivated fields or plantations]
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"It bears large number of berries producing number of viable seeds. Usually the plants forming colonies are found growing luxuriantly and are invariably free from diseases and pests."

704	Propagules adapted to wind dispersal	n
	Source(s)	**Notes**
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Additionally, Ugent (1981) reasoned that articulated fruiting pedicels (as possessed by S. chacoense) facilitate the distribution by birds, wind, and rain." [Wind may detach fruiting pedicels from plants, but are unlikely to play an important role in long distance dispersal given the fruit morphology]

705	Propagules water dispersed	
	Source(s)	**Notes**
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Additionally, Ugent (1981) reasoned that articulated fruiting pedicels (as possessed by S. chacoense) facilitate the distribution by birds, wind, and rain."
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	[Seeds or tubers may be dispersed when cultivated or growing near water channels] "In Shimla, the species can be seen growing in frequent large colonies on the hill slopes, along the road, and water channels and near the cultivated fields on grassy bunds (Fig. 2). It bears large number of berries producing number of viable seeds. "

706	Propagules bird dispersed	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Fruit 1.5-2 cm in diameter, globose to slightly ovoid, green to green with purple streaks when ripe, often with scattered white dots, glabrous." [Fleshy-fruited. Presumably dispersed by frugivorous vertebrates such as birds and mammals]
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"Nayar and Gohal (1970) have suggested the spread by birds, which, if accepted then the spread of this species cannot be confined to a particular area of forest, because its distribution has not gone beyond Bolleaugunja and Dhalli in Shimla town due to discontinuity of forest."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Ugent (1981) reviewed the potential of grazing animals to distribute wild Solanum species and concluded that a variety of animals could play a bigger role than previously thought in long-distance dispersal. Additionally, Ugent (1981) reasoned that articulated fruiting pedicels (as possessed by S. chacoense) facilitate the distribution by birds, wind, and rain."

707	**Propagules dispersed by other animals (externally)**	n
	Source(s)	**Notes**
	Spooner, D. M., Alvarez, N., Peralta, I. E., & Clausen, A. M. (2016). Taxonomy of wild potatoes and their relatives in southern South America (Solanum sects. Petota and Etuberosum). Systematic Botany Monographs, 100: 1-240	"Fruit 1.5-2 cm in diameter, globose to slightly ovoid, green to green with purple streaks when ripe, often with scattered white dots, glabrous." [No means of attachment]

708	**Propagules survive passage through the gut**	y
	Source(s)	**Notes**
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"It flowers and bears berries in abundance with a high percentage of viable seed setting. It also bears small sized tubers underground. The author believed that the monkeys (Macaca mullata) and langurs (Semnopithecus entellus) consume the mature berries near maturity and it is through their faecal matter seeds are dropped on the ground in different parts and after the break of dormancy the seeds germinate in high percentage, may be that the digestive enzymes help in high per cent germination."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	"Ugent (1981) reviewed the potential of grazing animals to distribute wild Solanum species and concluded that a variety of animals could play a bigger role than previously thought in long-distance dispersal. Additionally, Ugent (1981) reasoned that articulated fruiting pedicels (as possessed by S. chacoense) facilitate the distribution by birds, wind, and rain."

801	**Prolific seed production (>1000/m2)**	
	Source(s)	**Notes**
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	"It flowers and bears berries in abundance with a high percentage of viable seed setting." [Densities unknown]

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	[Seeds reported to be dormant, but longevity of seed bank not specified] "The author believed that the monkeys (Macaca mullata) and langurs (Semnopithecus entellus) consume the mature berries near maturity and it is through their faecal matter seeds are dropped on the ground in different parts and after the break of dormancy the seeds germinate in high percentage, may be that the digestive enzymes help in high per cent germination."

803	Well controlled by herbicides	
	Source(s)	**Notes**
	Motooka, P., Castro, L., Nelson, D., Nagai, G. & Ching,L. (2003). Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI	[Unknown for S. chacoense. Herbicides used to control the invasive Solanum linnaeanum may be effective] "Management: Sensitive to foliar-applied dicamba. Susceptible to soil-applied tebuthiuron at 2 lb/acre (48). Goats control apple-of-Sodom (An Peischel). Seedlings are easily killed by cultivation or pulling (61)."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	**Notes**
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Would presumably resprout from tubers even if all above ground plant material was removed or physically damaged] "Solanum chacoense typically produces an extensive mass of long stolons (Leue and Peloquin 1980). This would allow a single plant to spread underground as long as tubers survive until they overcome dormancy and complete another growing season. Consequently, even if a founder plant is destroyed, its offspring several meters away could survive."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	**Notes**
	Sharma, B. D. (2012). Naturalization of Solanum chacoense Bitter: an exotic species in the Shimla Hill, Himachal Pradesh. Indian Journal of Plant Genetic Resources, 25(02), 192-194	[Pseudomonas solanacearum, which is present in the Hawaiian Islands, presumably would not affect S. chacoense] "Evaluation studies conducted at the International Potato Centre (CIP), Lima, Peru indicated that S. chacoense possesses resistance to broad spectrum diseases and has a high degree of resistance to bacterial wilt caused by Pseudomonas solanacearum, a serious potato disease all over the world (Ochao, 1990)."
	Simon, R. et al. (2010). Wild and cultivated potato (Solanum sect. Petota) escaped and persistent outside of its natural range. Invasive Plant Science and Management, 3(3), 286-293	[Unknown in Hawaii] "Solanum chacoense appears to be particularly rich in disease resistance genes."

Summary of Risk Traits:

Solanum chacoense is a species of wild potato native to South America, particularly found in regions like Argentina, Bolivia, and Paraguay. It belongs to the Solanaceae family, which also includes other significant agricultural crops like tomatoes, peppers, and eggplants. Solanum chacoense is often used in potato breeding programs due to its genetic diversity and resistance to various diseases and pests that affect cultivated potatoes (Solanum tuberosum). With an ability to spread by bird and mammal-dispersed seeds, as well as vegetatively by rhizomes and stolons, this plant has escaped from cultivation in the United States, Europe, Australia, and New Zealand, and has been documented as naturalized in Kula, Maui. Where established, it may compete with desirable vegetation, and contains glycoalkaloids that may be toxic to animals or people if accidentally or intentionally consumed.

High Risk / Undesirable Traits
• Broad climate suitability and elevation range
• Escaped from cultivation in the United States, Europe, Australia, and New Zealand, and naturalized on Maui, Hawaiian Islands.
• A potential weed of crops and the natural environment
• Other Solanum species are invasive weeds
• Produces glycoalkaloids that deter insect browsing, and may deter mammalian browsing as well (giving the plant a competitive advantage)
• Glycoalkaloids can be toxic to animals and people if accidentally or intentionally consumed.
• Shade-tolerant (could invade more intact vegetation communities)
• A geophyte, with tubers that allow plants to persist underground
• Reproduces by seeds and vegetatively by stolons and tubers.
• Certain genotypes may be self-compatible (able to self-seed)
• Able to be spread from dumped garden waste
• Seeds dispersed by birds, mammals, and through intentional cultivation
• Tubers, and seeds may also be spread if cultivated near water sources

Low Risk Traits
• Where naturalized, no significant negative impacts have been documented to date
• Unarmed (no spines, thorns, or burrs)
• Most plants are self-incompatible (preventing single plants from setting viable seed)
• Herbicides may provide effective control, as they have with other invasive Solanum species