Table grapes from Chile

Draft Import Risk Analysis Report

Part B

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AGRICULTURE, FISHERIES AND FORESTRY - AUSTRALIA

Foreword

Contents

APPENDIX 1 PEST CATEGORISATION FOR TABLE GRAPES FROM CHILE (ARTHROPODS & DISEASES)

APPENDIX 1A: ARTHROPODS AND DISEASES – (PRESENCE AND ABSENCE IN AUSTRALIA)

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
ARTHROPODS						
Acari (mites)						
Brevipalpus chilensis Baker [Acari: Tenuipalpidae]	False red mite	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Brevipalpus obovatus Donnadieu [Acari: Tenuipalpidae]	Privet mite	Yes	Klein Koch & Waterhouse, 2000	Yes	Halliday, 1998; APPD, 2002	No
Bryobia rubrioculus (Sheuten) [Acari: Tetranychidae]	Brown almond mite	Yes	CABI, 2002; Klein Koch & Waterhouse, 2000	Yes	Halliday, 1998	No
Colomerus vitis (Pagenstecher) [Acari: Eriophyidae] strain a	Grape erineum mite; grape leaf blister mite	Yes	Gonzalez, 1983	Yes	James & Whitney, 1993	No
Colomerus vitis (Pagenstecher) [Acari: Eriophyidae] strain b	Grape bud mite	Yes	Gonzalez, 1983	Yes	James & Whitney, 1993; CSIRO, 2001	No
Eotetranychus lewisi (McGregor) [Acari: Tetranychidae]	Lewis spider mite	Yes	Klein Koch & Waterhouse, 2000	No		Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Oligonychus vitis Zaher & Shehata [Acari: Tetranychidae]	Table grape red mite	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Oligonychus yothersi McGreg. [Acari: Tetranychidae]	Avocado red mite	Yes	Bolland *et al*., 1998	No		Yes
Panonychus ulmi (Koch) [Acari: Tetranychidae]	European red mite	Yes	Gonzalez, 1983	Yes (not in WA)	Bolland *et al*., 1998; Halliday, 1998	Yes (WA only)
Tetranychus desertorum Banks [Acari: Tetranychidae]	Tetranychid mite	Yes	Prado, 1991	No		Yes
Tetranychus ludeni Zacher [Acari: Tetranychidae]	Red spider mite	Yes	Prado, 1991	Yes	APPD, 2002; Halliday, 1998	No
Tetranychus urticae Koch [Acari: Tetranychidae]	Two-spotted mite	Yes	Klein Koch & Waterhouse, 2000	Yes	Halliday, 1998	No
Araneae (spiders)						
Latrodectus mactans (Frabricius) [Araneae: Theridiidae]	Black widow spider	Yes	Schenone & Correa, 1985	No		Yes
Coleoptera (beetles, weevils)						
Athlia rustica (Erichson) [Coleoptera: Scarabaeidae]	Brown beetle	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Callideriphus laetus Bl. [Coleoptera: Cerambycidae]	Peumo borer	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Carpophilus humeralis Fabricius [Coleoptera: Nitidulidae]	Pineapple beetle	Yes	CABI, 2002; Klein Koch &	Yes	James *et al.,* 1995	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
			Waterhouse, 2000			
Dexicrates robustus (Blanchard) [Coleoptera: Bostrichidae]	Tree wood borer	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Geniocremnus chilensis (Boheman) [Coleoptera: Curculionidae]	Tuberous pine weevil	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Micrapate humeralis (Blanchard) [Coleoptera: Bostrichidae]	Mesquite borer	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Micrapate scabrata (Erichson) [Coleoptera: Bostrichidae]	Vine borer	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Naupactus xanthographus (Germar) [Coleoptera: Curculionidae]	Fruit tree weevil	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Neoterius mystax (Blanchard) [Coleoptera: Bostrichidae]	Fence borer	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Otiorhynchus sulcatus (Fabricius) [Coleoptera: Curculionidae]	Vine weevil; black vine weevil	Yes	Prado, 1988; CABI, 2002	Yes (not in WA)	CSIRO, 2001	Yes (WA only)
Pantomorus ruizi (Brèthes) [Coleoptera: Curculionidae]	Alfalfa root weevil	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Platyapistes glaucus Farhaeus [Coleoptera: Curculionidae]	Weevil	Yes	Prado, 1991	No		Yes
Platyapistes venustus (Erichson) [Coleoptera: Curculionidae]	Green weevil	Yes	Gonzalez, 1983	No		Yes
Diptera (flies)						
Ceratitis capitata (Wiedemann) [Diptera:	Mediterranean fruit fly	Yes	Prado, 1991	Yes (WA only)	Hancock *et al.*,	Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Tephritidae]					2000	
Drosophila melanogaster Meigen [Diptera: Drosophilidae]	Vinegar fly	Yes	Klein Koch & Waterhouse, 2000	Yes	Olsen *et al*., 2001; APPD, 2002	No
Hemiptera (aphids, leafhoppers, mealybugs, scales, true bugs, whiteflies)						
Aphis fabae Scopoli [Hemiptera: Aphididae]	Black aphid	Yes	CABI, 2002; Klein Koch & Waterhouse, 2000	No		Yes
Aphis gossypii Glover [Hemiptera: Aphididae]	Cotton aphid	Yes	Gonzalez, 1983	Yes	APPD, 2002; CSIRO, 2001	No
Aphis illinoisensis Shimer [Hemiptera: Aphididae]	Grapevine aphid	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Aphis spiraecola Patch [Hemiptera: Aphididae]	Spiraea aphid; apple aphid	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Aspidiotus nerii Bouché [Hemiptera: Diaspididae]	Ivy/oleander scale; aucuba scale	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Balclutha aridula (Linnavuori) [Hemiptera: Cicadellidae]	Ballica leafhopper	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Coccus hesperidum Linnaeus [Hemiptera: Coccidae]	Soft brown scale	Yes	CABI, 2002; Klein Koch & Waterhouse, 2000	Yes	APPD, 2002; CSIRO, 2001	No
Diaspidiotus ancylus (Putnam) [Hemiptera: Diaspididae]	Putnam scale	Yes	Klein Koch & Waterhouse, 2000	Yes	APPD, 2002	No
Hemiberlesia lataniae (Signoret) [Hemiptera:Diaspididae]	Latania scale	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Hemiberlesia rapax (Comstock) [Hemiptera: Diaspididae]	Greedy scale	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Icerya palmeri Riley-How [Hemiptera:	Margarodes scale	Yes	Prado, 1991	No		Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Margarodidae]						
Leptoglossus chilensis Spinola [Hemiptera: Coreidae]	Brown Chilean leaf-footed bug	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Margarodes vitis (Philippi) [Hemiptera: Margarodidae]	Grape pearl	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Nezara viridula (Linnaeus) [Hemiptera: Pentatomidae]	Green vegetable bug	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Parthenolecanium corni (Bouché) [Hemiptera: Coccidae]	European fruit Lecanium	Yes	Klein Koch & Waterhouse, 2000	Yes (not in WA)	CSIRO, 2001	Yes (WA only)
Parthenolecanium persicae (Fabricius) [Hemiptera: Coccidae]	European peach scale; grapevine scale	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Planococcus citri Risso [Hemiptera: Pseudococcidae]	Citrus mealybug	Yes	CABI, 2002; Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001; Gullan, 2000	No
Pseudococcus calceolariae (Maskell) [Hemiptera: Pseudococcidae]	Citrophilus mealybug	Yes	Prado, 1991	Yes (not in WA)	CSIRO, 2001	Yes (WA only)
Pseudococcus longispinus (Targioni-Tozzetti) [Hemiptera: Pseudococcidae]	Longtail mealybug	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Pseudococcus maritimus (Ehrhorn) [Hemiptera: Pseudococcidae]	Grape mealybug	Yes	Klein Koch & Waterhouse, 2000	No	Williams, 1985	Yes
Pseudococcus viburni (Signoret) Hemiptera: Pseudococcidae] (formerly *P. affinis* Maskell)	Root mealybug	Yes	Klein Koch & Waterhouse, 2000	Yes	Gullan, 2000; Williams, 1985	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Quadraspidiotus perniciosus (Comstock) [Hemiptera: Diaspididae]	San José scale	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Saissetia coffeae Walker [Hemiptera: Coccidae]	Brown coffee scale	Yes	Ben-Dov, 1993	Yes	Ben-Dov, 1993	No
Saissetia oleae (Olivier) [Hemiptera: Coccidae]	Black scale	Yes	Klein Koch & Waterhouse, 2000	Yes	CSIRO, 2001	No
Tettigades chilensis Amyot & Serville [Hemiptera: Cicadidae]	Common cicada	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Hymenoptera (ants, wasps)						
Ametastegia glabrata Fallen [Hymenoptera: Tenthredinidae]	Holoartic sawfly	Yes	Prado, 1991	Yes (not in WA)	CSIRO, 2001	Yes (WA only)
Polistes buyssoni Brethes [Hymenoptera: Vespidae]	Paper wasp	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Vespula germanica (Fabricius) [Hymenoptera: Vespidae]	European wasp	Yes	Klein Koch & Waterhouse, 2000	Yes (not in WA)	CSIRO, 2001	Yes (WA only)
Isoptera (termites)						
Neotermes chilensis (Blanchard) [Isoptera: Kalotermitidae]	Chilean termite	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Lepidoptera (moths, butterflies)						
Accuminulia buscki J. Brown [Lepidoptera: Tortricidae]	Tortricid leafroller	Yes	Brown, 1999	No	Brown, 1999	Yes
Accuminulia longiphallus J. Brown [Lepidoptera: Tortricidae]	Tortricid leafroller	Yes	Brown, 1999	No	Brown, 1999	Yes
Agrotis ipsilon (Hufnagel) [Lepidoptera: Noctuidae]	Black cutworm	Yes	Klein Koch &	Yes	APPD, 2002;	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
			Waterhouse, 2000; Parra *et al*., 1986		CSIRO, 2001	
Chileulia stalactitis (Meyrick) [Lepidoptera: Tortricidae]	Grape berry moth	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Copitarsia consueta (Walker) [Lepidoptera: Noctuidae]	Copitarsia cutworm	Yes	Gonzalez, 1983	No		Yes
Copitarsia turbata (Herrich-Schaffer) [Lepidoptera: Noctuidae]	Copitarsia cutworm	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Hyles annei (Guérin-Méneville) (*Celerio annei* (Guérin)) [Lepidoptera: Sphingidae]	Vine hornworm	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Hyles euphorbiarum (Guérin-Méneville & Percheron) (*Celerio euphorbiarum* (Guérin-Méneville & Percheron) [Lepidoptera: Sphingidae]	Palqui hornworm	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Hyles lineata Fabricius (*Celerio lineata* (Fabricius)) [Lepidoptera: Sphingidae]	White lined sphinx	Yes	Gonzalez, 1983	Yes	APPD, 2002 ; CSIRO, 2001	No
Paracles rudis (Butler) [Lepidoptera: Arctiidae]	Red grape caterpillar	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Peridroma saucia (Hübner) [Lepidoptera: Noctuidae]	Variegated cutworm	Yes	CABI, 2002; Klein Koch & Waterhouse, 2000	No		Yes
Proeulia apospata Obraztsov [Lepidoptera: Tortricidae]	Wine leaf roller	Yes	Gonzalez, 1983	No		Yes
Proeulia auraria (Clarke) [Lepidoptera: Tortricidae]	Orange leaf roller	Yes	Klein Koch &	No		Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
			Waterhouse, 2000			
Proeulia chrysopteris (Butler) [Lepidoptera: Tortricidae]	Fruit leaf roller	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Proeulia triquetra Obraztsov [Lepidoptera: Tortricidae]	Grape leaf roller	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Spodoptera frugiperda J.E. Smith [Lepidoptera: Noctuidae]	Fall armyworm	Yes	CABI/EPPO, 1997	No		Yes
Orthoptera (crickets, grasshoppers, locusts)						
Achaeta fulvipennis Brown [Orthoptera: Gryllidae]	Cricket	Yes	Gonzalez, 1983	No		Yes
Dichroplus maculipennis (Blanchard) [Orthoptera: Acrididae]	Spotted wing grasshopper	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Schistocerca cancellata (Serville) [Orthoptera: Acrididae]	South American locust	Yes	Gonzalez, 1983	No		Yes
Thysanoptera (thrips)						
Drepanothrips reuteri Uzel [Thysanoptera: Thripidae]	Grape thrips	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Frankliniella australis Morgan [junior synonym – *F. cestrum*] [Thysanoptera: Thripidae]	Chilean flower thrips	Yes	Klein Koch & Waterhouse, 2000	No		Yes
Frankliniella occidentalis (Pergande) [Thysanoptera: Thripidae]	Western flower thrips	Yes	Klein Koch & Waterhouse, 2000	Yes (restricted distribution)	APPD, 2002; Mound & Gillespie, 1997	Yes
Heliothrips haemorrhoidalis (Bouché)	Greenhouse thrips	Yes	Klein Koch &	Yes	APPD, 2002;	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
[Thysanoptera: Thripidae]			Waterhouse, 2000		CSIRO, 2001	
Thrips australis (Bagnall) [Thysanoptera: Thripidae]	Eucalyptus thrips	Yes	Prado, 1991	Yes	APPD, 2002; CSIRO, 2001	No
Thrips tabaci Lindeman [Thysanoptera: Thripidae]	Onion thrips	Yes	Klein Koch & Waterhouse, 2000	Yes	APPD, 2002; CSIRO, 2001	No
GASTROPODA (snails, slugs)						
Helix aspersa (Müller)	Brown garden snail, common garden snail	Yes	CABI, 2002; Gonzalez, 1983	Yes	CABI, 2002; Furness, 1977	No
BACTERIA						
Agrobacterium vitis (Smith & Townsend) Conn	Crown gall of grapes	Yes	Burr *et al*., 1998	Yes	Gillings & Ophel-Keller, 1995	No
Pseudomonas syringae pv. *syringae* van Hall	Bacterial canker	Yes	Bradbury, 1986	Yes	Bradbury, 1986	No
Rhizobium radiobacter (Beijerinck & van Delden) Pribram	Crown gall	Yes	Bradbury, 1986	Yes	Bradbury, 1986	No
FUNGI						
Alternaria alternata (Fr.) Keissl.	Alternaria leaf spot	Yes	Mujica *et al*., 1980; Pszczólkowski *et al*., 2003	Yes	APDD, 2002	No
Armillaria mellea (Vahl.: Fr.) Kumm	Armillaria root rot	Yes	SAG, 2003	No		Yes
Aspergillus niger van Tiegh.	Black-mould rot	Yes	Mujica *et al*., 1980; Pszczólkowski *et al*., 2003	Yes	APDD, 2002	No
Botrytis cinerea Pers.: Fr.	Botrytis rot	Yes	SAG, 1995; Mujica	Yes	APDD, 2002;	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
			et al., 1980; Pszczólkowski *et al*., 2003		Nicholas *et al*., 1994	
Botryosphaeria dothidea (Moug.) Ces. & de Not.	Macrophoma rot	Yes	SAG, 2003	Yes	APDD, 2003	No
Cladosporium herbarum (Pers.: Fr.) Link	Cladosporium rot	Yes	Mujica *et al*., 1980; Pszczólkowski *et al*., 2003	Yes	APDD, 2002	No
Sclerotium rolfsii Sacc.	Collar rot	Yes	CABI, 2002	Yes	CABI, 2002	No
Cylindrocarpon sp. [possibly *C. destructans* (Zinssmeister) Scholten]		Yes	SAG, 2003; CABI, 2002	Yes	APDD, 2003; CABI 2002	No
Elsinoe ampelina (de Bary) Shears	Anthracnose, bird's eye rot (black spot)	Yes	Mujica *et al*., 1980	Yes	APDD, 2002; Nicholas *et al*., 1994	No
Epicoccum nigrum Link	Cereal leaf spot	Yes	Mujica *et al*., 1980	Yes	APDD, 2002	No
Fusarium culmorum (W.G. Sm.) Sacc.	Damping off	Yes	CABI, 2002	Yes	APDD, 2002; CABI, 2002	No
Mucor racemosus Fres.	Spongy storage rot	Yes	Mujica *et al*., 1980	Yes	APDD, 2002	No
Nectria cinnabarina (Tode) Fr.	Twig blight	Yes	Mujica *et al*., 1980	Yes	APDD, 2002	No
Phoma sp.	Fruit rot	Yes	Pszczólkowski *et al*., 2003	Yes (*Phoma vitis* Bonord)	Shivas, 1989; Barbetti & Wood, 1978	No
Phomopsis viticola (Sacc.) Sacc.	Phomopsis cane and leaf spot, black rot	Yes	Mujica *et al*., 1980	Yes	Merrin *et al*., 1995	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Phytophthora cinnamomi Rands	Crown and root rot	Yes	Latorre *et al*., 1997; SAG, 2003	Yes	Marks *et al*., 1975; Nicholas *et al*., 1994	No
Phytophthora cryptogea Pethybr. & Laff.	Crown and root rot	Yes	Latorre *et al*., 1997; CABI, 2002; SAG, 2003	Yes	APDD, 2002	No
Phytophthora drechsleri Tucker	Fruit rot	Yes	Latorre *et al*., 1997	Yes	APDD, 2002	No
Plasmopara viticola (Berkeley & Curtis) Berl. & de Toni	Downy mildew	Yes	Macenauer, 1993; SAG, 2003	Yes	Nicholas *et al*., 1994	No
Pleospora herbarum (Fr.) Rabenh.	Bunch rot	Yes	Mujica *et al*., 1980	Yes	APDD, 2002	No
Pythium debaryanum Hesse	Damping off	Yes	Mujica *et al*., 1980	Yes	Marks & Kassaby, 1974	No
Rosellinia necatrix Prill	Rosellinia root rot	Yes	SAG, 2003	Yes	Pearson & Goheen, 1994	No
Sclerotinia sclerotiorum (Lib.) de Bary	Collar rot	Yes	Latorre & Guerrero, 2001	Yes	CABI, 2002	No
Sphaeropsis malorum Berk.	Dead arm, canker	Yes	SAG, 2003	Yes	APDD, 2003	No
Stereum hirsutum (willd. Ex Fr.) S.F. Gray	Esca	Yes	SAG, 2003	Yes	APDD, 2003	No
Talaromyces wortmannii (Klocker) C.R. Benjamin	Blue mould rot	Yes	Soto *et al*., 1973	Yes	APDD, 2003	No
Trichothecium roseum (Pers.) Link.	Pink mould rot	Yes	Soto *et al*., 1973	Yes	APDD, 2002	No
Ulocladium atrum Preuss	Ulocladium blight	Yes	Soto *et al*., 1973	Yes	APDD, 2002	No
Uncinula necator (Schwein.) Burrill	Grapevine powdery mildew	Yes	Latorre *et al*., 1996; SAG, 2003	Yes	APDD, 2002	No
Verticillium dahliae Kleb.	Verticillium wilt	Yes	Latorre *et al*., 1989; SAG, 2003	Yes	APDD, 2002	No
NEMATODES						
Criconemoides xenoplax Raski	Ring nematode	Yes	Allen *et al*., 1971;	Yes	Khair, 1986;	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
			SAG, 2003		Nyczepir & Halbrendt, 1993	
Helicotylenchus dihystera (Cobb) Sher.	Spiral nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Meloidogyne arenaria (Neal) Chitwood	Root knot nematode	Yes	SAG, 2003	Yes	McLeod *et al*., 1994	No
Meloidogyne hapla Chitwood	Root knot nematode	Yes	SAG, 2003	Yes	APDD, 2003; Nicholas *et al*., 1994	No
Meloidogyne incognita Chitwood	Root knot nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Meloidogyne javanica (Treub) Chitwood	Root knot nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Paratylenchus nanus Cobb	Pin nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Paratylenchus vandenbrandei de Grisse	Pin nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Pratylenchus neglectus (Rensch) Filipjev & S. Stekhoven	Root-lesion nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Pratylenchus thornei Sher & Allen	Root-lesion nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Pratylenchus vulnus Allen & Jensen	Root lesion nematode	Yes	SAG, 2003	Yes	APDD, 2003;	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
					Nicholas *et al*., 1994	
Tylenchulus semipenetrans Cobb	Citrus root nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Xiphinema americanum Cobb	Dagger nematode	Yes	Allen *et al*., 1971	Yes	McLeod *et al*., 1994	No
Xiphinema index Thorne & Allen	Dagger nematode	Yes	Allen *et al*., 1971	Yes (restricted distribution)	McLeod *et al*., 1994; Harris, 1977	Yes
PHYTOPLASMA						
Amarillamiento de Elqui	Grapevine yellows phytoplasma	Yes	Pearson & Goheen, 1994	No		Yes
VIRUSES						
Arabis mosaic *nepovirus*	Arabis mosaic	Yes	SAG, 2003	Yes	Sivapalan *et al*., 2001	No
Cherry leaf roll virus	Ash mosaic virus, sambucus ringspot and yellow net virus	Yes	Herrera & Madariaga, 2001	Yes	Brunt *et al*., 1996	No
Grapevine corky bark associated *closterovirus*	Stem pitting of grapevine	Yes	SAG, 2003	No		Yes
Grapevine fanleaf *nepovirus*	Grapevine court-noué virus	Yes	Herrera & Madariaga, 2001	Yes (restricted to Rutherglen area, but not under official control)	Sivapalan *et al*., 2001	Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Grapevine leaf roll associated *closterovirus*	Grapevine Leafroll disease	Yes	Herrera & Madariaga, 2001	Yes (uncertain as to which viruses/strains are common with Chile)	Habili *et al*., 1996	Yes
Strawberry latent ringspot *nepovirus*	Strawberry latent ringspot	Yes	SAG, 2003	Yes	Sivapalan *et al*., 2001	No
Tomato ringspot *nepovirus*	Grapevine yellow vein	Yes	Herrera & Madariaga, 2001	Uncertain	Sivapalan *et al*., 2001	Yes

(WA only) – these species are considered further only with respect to the State of Western Australia due to their absence from this State.

APPENDIX 1B: ARTHROPODS AND DISEASES – (ASSOCIATION WITH TABLE GRAPE CLUSTERS)

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
ARTHROPODS					
Acari (mites)					
Brevipalpus chilensis Baker [Acari: Tenuipalpidae]	False red mite	Yes	Feeds on the lower surface of the leaves. It is expected that mites will be found on stems, during their transit from leaf to leaf.	Jeppson *et al.,* 1975	Yes
Eotetranychus lewisi (McGregor) [Acari: Tetranychidae]	Lewis spider mite	Yes	Mites are known to feed and lay eggs on both fruit and leaves of other species of hosts. It is expected that mites will be found on stems, during their transit from leaf to leaf.	Jeppson *et al.,* 1975	Yes
Oligonychus vitis Zaher & Shehata [Acari: Tetranychidae]	Table grape red mite	Yes	Primarily feeds on foliage and lays eggs on the bases of buds or in scars in wood. Larvae move towards leaves and are found on upper and lower surfaces of leaves and shoots. The main damage to the plant consists of browning of the leaf laminae and a slight web production that favours dust deposition. The attack on the foliage can lead to early defoliation in certain grape varieties.	Gonzalez, 1983	Yes

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
Oligonychus yothersi McGreg. [Acari: Tetranychidae]	Avocado red mite	Yes	Feeds on the upper leaf surface. During heavy infestations, the entire leave surface may be attacked. The same type of attack is expected on *Vitis vinifera* leaves, and it is also expected that mites will be found on stems, during their transit from leaf to leaf.	Jeppson *et al.,* 1975	Yes
Panonychus ulmi (Koch) [Acari: Tetranychidae]	European red mite	Yes	Feeding causes the leaves to turn brown. Eggs are laid on twigs and smaller branches. It is expected that adult mites will be found on stems, during their transit from leaf to leaf.	WVU, 2000	Yes (WA only)
Tetranychus desertorum Banks [Acari: Tetranychidae]	Tetranychid mite	Yes	Mite is known to feed on both fruit and leaves of other host species. Adults are dispersed from one host to another by crawling and by winds. The same type of attack is expected on *Vitis vinifera*, and it is also expected that mites will be found on stems, during their transit from leaf to leaf.	Jeppson *et al.,* 1975	Yes
Araneae (spiders)					
Latrodectus mactans (Fabricius) [Araneae: Theridiidae]	Black widow spider	Yes (contaminating pest)	Although this species feeds on fauna rather than on table grapes directly, it has been recorded as having been imported into Ireland, and more recently into New Zealand, with table grape shipments from California.	Ross, 1988	Yes
Coleoptera (beetles, weevils)					
Athlia rustica (Erichson)	Brown beetle	No	Primarily feeds on leaves and buds.	Gonzalez, 1983	No

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
[Coleoptera: Scarabaeidae]					
Callideriphus laetus Bl. [Coleoptera: Cerambycidae]	Peumo borer	No	Primarily feeds on downed logs, stumps, dead or dying branches. It has been recorded as using grape vines as a host.	EFPIS, 1998 ; Klein Koch & Waterhouse, 2000	No
Dexicrates robustus (Blanchard) [Coleoptera: Bostrichidae]	Wood borer	No	An accidental pest of grape vines, associated with trunks and branches.	Gonzalez, 1983	No
Geniocremnus chiliensis (Boheman) [Coleoptera: Curculionidae]	Tuberous pine weevil	Yes	Native Coleopteran that can be found accidentally feeding on leaves in grapevines. Cannot fly, larvae are subterranean. May be associated with clusters as for *Naupactus xanthographus*.	SAG, 2002	Yes
Micrapate humeralis (Blanchard) [Coleoptera: Bostrichidae]	Mesquite borer	No	A borer of carob tree branches (*Prosopis chilensis*), occasionally found in grape vines.	SAG, 2002	No
Micrapate scabrata (Erichson) [Coleoptera: Bostrichidae]	Vine borer	No	Adults bore holes into the bases of the buds and vine trunks where eggs are laid. The larvae penetrate into the wood and construct a gallery in which they live and feed. This species mainly affects buds, branches, shoots and stems. Overwinters as larvae, pupae and adults.	Gonzalez, 1983	No
Naupactus xanthographus (Germar) [Coleoptera: Bostrichidae]	Fruit tree weevil	Yes	Larvae damage the roots of grape vines and adults are known to be found on foliage. Has been detected in table grapes exported to the USA from Chile.	Gonzalez, 1983; Ripa, 1994	Yes

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
Neoterius mystax (Blanchard) [Coleoptera: Bostrichidae]	Fence borer	No	An opportunistic borer pest of vines. Found in trunks and branches.	Gonzalez, 1983	No
Otiorhynchus sulcatus (Fabricius) [Coleoptera: Curculionidae]	Vine weevil; black vine weevil	Yes	Larvae feed on small roots in the soil. Adults feed on foliage, as well as any portion of the inflorescence. *O. sulcatus* can cause damage to grapes by feeding on the pedicels and cluster stems.	CABI, 2002; Phillips, 1981	Yes (WA only)
Pantomorus ruizi (Brèthes) [Coleoptera: Curculionidae]	Alfalfa root weevil	No	Adult feeds on foliage, larvae are of a subterranean habit.	SAG, 2002	No
Platyapistes glaucus Farhaeus [Coleoptera: Curculionidae]	Weevil	No	Associated with leaves and buds.	Gonzalez, 1983	No
Platyapistes venustus (Erichson) [Coleoptera: Curculionidae]	Green weevil	No	Associated with leaves and buds.	Gonzalez, 1983	No
Diptera (flies)					
Ceratitis capitata (Wiedemann) [Diptera: Tephritidae]	Mediterranean fruit fly	Yes	Chile is considered a pest free area for this pest but it could be associated with the pathway if it became established. Highly polyphagous. Causes damage to a wide range of unrelated fruit, primarily through oviposition into the fruit where larvae feed internally.	Hancock *et al*., 2000	Yes
Hemiptera (aphids, leafhoppers, mealybugs, scales, true bugs)					

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
Aphis fabae Scopoli [Hemiptera: Aphididae]	Black bean aphid	Yes	Young colonies consist of matt black aphids on young shoots, older colonies spread over most of aerial parts of the plant.	Blackman & Eastop, 1984	Yes
Aphis illinoisensis Shimer [Hemiptera: Aphididae]	Grapevine aphid	Yes	Damages young shoots, leaves. When populations are high, some may feed on fruit clusters, causing some berries to drop.	Pfeiffer & Schultz, 1986	Yes
Balclutha aridula (Linnaeus) [Hemiptera: Cicadellidae]	Ballica leafhopper	No	Little is known about this species. Other species of leafhopper found on grapes feed on leaves. Heavily damaged leaves lose their green colour, dry up and may fall off the vine. Leafhopper production of honeydew can result in spotting of fruit. Overwinter as adults, and are found on newly emerged grape leaves. Adults and nymphs feed on leaves by puncturing leaf cells and sucking out nutrients.	USDA, 2002	No
Icerya palmeri Riley-How [Hemiptera: Margarodidae]	Margarodes scale	Unknown	Little information is available on this species. In general, Margarodidae live on a wide variety of hosts, especially woody plants. Damage to the plant is caused by sap depletion, introduction of toxins and the production of honeydew hindering photosynthesis.	Morales, 1991	Yes
Leptoglossus chilensis (Spin.)	Brown Chilean	No	Little information is available on the biology of this	Fasulo & Stansly,	No

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
[Hemiptera: Coreidae]	leaf-footed bug		pest. Other species of this genus feed on shoots and occasionally on fruits. Has been recorded as causing fruit damage on citrus. Punctures the fruit and sucks juice.	1999	
Margarodes vitis (Philippi) [Hemiptera: Margarodidae]	Grape ground pearl	No	This species is subterranean (except for adult males) and live on roots. Males live for up to 14 days and appear above ground for a short time.	CABI/EPPO, 1997	No
Parthenolecanium corni (Bouché) [Hemiptera: Coccidae]	European fruit lecanium scale	Yes	*Vitis* spp. are host plants for this species. Males are winged. Crawlers settle and feed on leaf undersides, but later stages often migrate to stems and branches. It is expected that crawlers may settle within grape clusters.	CABI, 2002; WVU 2000	Yes (WA only)
Pseudococcus calceolariae (Maskell) [Hemiptera: Pseudococcidae]	Citrophilus mealybug	Yes	When *P. calceolariae* shelter in fruit, for example, within the calyx, around the stalk, or under fruit sepals, they are often hidden from view. *Vitis vinifera* is a primary host for this species.	CABI, 2002	Yes (WA only)
Pseudococcus maritimus (Ehrhorn) [Hemiptera: Pseudococcidae]	Grape mealybug	Yes	Overwintered first instar nymphs feed at bases of shoots or pedicels of grape clusters. This mealybug contaminates grapes with one or more of the following: the cottony ovisac, eggs, immature larvae, adults, honeydew or black sooty	Flaherty *et al.,* 1981; Pfeiffer & Schultz, 1986	Yes

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
			mould growing on honeydew.		
Tettigades chilensis Amyot & Serville [Hemiptera: Cicadidae]	Common cicada	No	Primarily feeds on roots and branches.	Gonzalez, 1983	No
Hymenoptera (ants, wasps)					
Ametastegia glabrata Fallen [Hymenoptera: Tenthredinidae]	Sawfly	No	Larvae bores into the woody stems of grape vines to pupate.	Carillo *et al*., 1990	No
Polistes buyssoni Brethes [Hymenoptera: Vespidae]	Paper wasp	No	Feed on mature fruits, extracting pieces of pulp.	Gonzalez, 1983	No
Vespula germanica (Fabricius) [Hymenoptera: Vespidae]	European wasp	No	Wasps may break open the skins of grape berries in order to lick out the sweet contents.	VTED, 2003	No
Isoptera (termites)					
Neotermes chilensis (Blanchard) [Isoptera: Kalotermitidae]	Chilean termite	No	When attacking the vine, termites feed on the heartwood (dead tissue) and usually avoid the living sapwood.	Rust, 1981	No
Lepidoptera (moths, butterflies)					
Accuminulia buscki Brown [Lepidoptera: Tortricidae]	Tortricid leafroller	Yes	Feeds on table grape fruits.	Brown, 1999	Yes
Accuminulia longiphallus Brown [Lepidoptera: Tortricidae]	Tortricid leafroller	Yes	Nothing is known of the biology of this species. As other *Accuminulia* species are known to bore into fruit, this species would potentially remain on the pathway.	Brown, 1999	Yes
Chileulia stalactitis (Meyrick)	Grape berry	Yes	Larvae spin silk webs for protection and feed in	WVU, 2000; Weigle	Yes

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
[Lepidoptera: Tortricidae]	moth		several green berries in the cluster before becoming fully grown. Larvae pupate in folded cutout portions of the leaves on the vine or ground.	*et al.,* 2000	
Copitarsia consueta (Walker) [Lepidoptera: Noctuidae]	Copitarsia cutworm	No	Climbing cutworms is a general term applied to a number of moth larvae that feed on grape buds. Climbing cutworms are sporadic pest of grapes. Larvae hide during the day under the bark and in the soil litter under the vines and come out at night to feed.	URI, 2003; Weigle *et al*., 2000	No
Copitarsia turbata (Herrich-Schaffer) [Lepidoptera: Noctuidae]	Copitarsia cutworm	No	Climbing cutworms is a general term applied to a number of moth larvae that feed on grape buds. Climbing cutworms are sporadic pest of grapes. Larvae hide during the day under the bark and in the soil litter under the vines and come out at night to feed.	URI, 2003; Weigle *et al*., 2000	No
Hyles annei (Guérin-Méneville) [Lepidoptera: Sphingidae]	Vine hornworm	No	Larvae feed on foliage and pupation is subterranean.	SAG, 2002	No
Hyles euphorbiarum (Guérin-Méneville & Percheron) (*Celerio euphorbiarum* (Guérin-Méneville & Percheron) [Lepidoptera:	Palqui hornworm	No	Occasional pest of vines. Can cause serious defoliation of individual plants.	Gonzalez, 1983	No

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
Sphingidae]					
Paracles rudis (Butler) (Chilesia rudis Butler) [Lepidoptera: Arctiidae]	Red grape caterpillar	No	The larvae are phytophagous and consume leaves and buds. Eggs are laid among tufts of grass.	Angulo, 2003	No
Peridroma saucia (Hübner) [Lepidoptera: Noctuidae]	Variegated cutworm	Yes	Primarily feed on leaves, stems, growing points, and inflorescences of agricultural crops and low growing fruit trees. Eggs are usually laid on twigs and stems rather than on leaves. On hatching the larvae eat the eggshell before turning to plant material. Flowers and developing fruits are eaten in preference to leaves, and during outbreaks the larvae will eat even the stems and tender bark of woody plants.	CABI, 2002	Yes
Proeulia apospata Obraztsov [Lepidoptera: Tortricidae]	Fruit tree leaf roller	Yes	Larvae of the genus *Proeulia* are leaf-rollers, also reported as feeding on the surface and boring into the fruit of host plants.	Brown & Passoa, 1998; Brown, 1999	Yes
Proeulia auraria (Clarke) [Lepidoptera: Tortricidae]	Chilean fruit tree leaf folder	Yes	Larvae of the genus *Proeulia* are leaf-rollers, also reported as feeding on the surface and boring into the fruit of host plants. Grape is a host plant for *P. auraria.*	Brown & Passoa, 1998; Brown, 1999	Yes
Proeulia chrysopteris (Butler) [Lepidoptera: Tortricidae]	Fruit leaf folder	Yes	Larvae of the genus *Proeulia* are leaf-rollers, also reported as feeding on the surface and boring into	Brown & Passoa, 1998; Brown, 1999	Yes

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
			the fruit of host plants. Grape is a secondary host plant for *P. chrysopteris.*		
Proeulia triquetra Obraztsov [Lepidoptera: Tortricidae]	Grape leaf roller, fruit tree leaf roller	Yes	Larvae of the genus *Proeulia* are leaf-rollers, also reported as feeding on the surface and boring into the fruit of host plants. Grape is the only recorded host plant for *P. triquetra.*	Brown & Passoa, 1998; Brown, 1999	Yes
Spodoptera frugiperda J.E. Smith [Lepidoptera: Noctuidae]	Fall armyworm	No	Larvae feed on leaves. Pupation occurs in an earthen cell or rarely between leaves on the host plant.	CABI/EPPO, 1997	No
Orthoptera (crickets, grasshoppers, katydids)					
Achaeta fulvipennis Brown [Orthoptera: Gryllidae]	Cricket	No	Feeds on foliage of several hosts and is found principally in ground cover.	Zanin, 1995	No
Dichroplus maculipennis (Blanchard) [Orthoptera: Acrididae]	Spotted wing grasshopper	No	This species is phytophagous, invading crops, fodder, gardens and orchards. Oviposits in dry, uncultivated land.	Uvarov, 1977	No
Schistocerca cancellata (Serville) [Orthoptera: Acrididae]	South American locust	No	An opportunistic feeder on leaves and buds.	Gonzalez, 1983	No
Thysanoptera (thrips)					
Drepanothrips reuteri Uzel [Thysanoptera: Thripidae]	Grape thrips	Yes	Table grapes are susceptible to thrips damage. *D. reuteri* causes severe damage to both foliage and grape bunches, scarring berries with their feeding.	Flaherty *et al.,* 1981; Ripa, 1994; UC, 2000	Yes
Frankliniella australis Morgan	Chilean flower	Yes	Feeds around the sepals and calyces of blossoms	Gonzalez, 1983	Yes

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
[junior synonym – *F. cestrum*] [Thysanoptera: Thripidae]	thrips		and may cause scarring of fruit. May also affect leaves and shoots. Found on grape vines mainly during the time of inflorescence. The remainder of the time it inhabits any plant, which allows the development of nymphs and adults.		
Frankliniella occidentalis (Pergande) [Thysanoptera: Thripidae]	Western flower thrips	Yes	Cause serious shoot stunting and leaf distortion, followed by berry scarring.	Lewis, 1997	Yes
FUNGI					
Armillaria mellea (Vahl.: Fr.) Kumm [Agaricales: Tricholomataceae]	Armillaria root rot, honey root rot	No	A root pathogen.	Elkins *et al*., 1998	No
NEMATODES					
Xiphinema index Thorne & Allen	Dagger nematode	No	All stages occur in the soil as migratory root ectoparasites. There is no association of any life stage with the fruit of grapevine.	CABI, 2002	No
PHYTOPLASMA					
Amarillamiento de Elqui	Grapevine yellows phytoplasma	No	Grapevine yellows disease shows the symptoms of *flavesence doree*. The leaves harden, roll slightly abaxially and tend to overlap. The brittle leaves first become golden yellow or red	Pearson & Goheen, 1994	No

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
			(depending on cultivars) on all parts most exposed to sun. Later in summer, creamy spots appear along the main veins. These cream-coloured spots generally become necrotic. Sometimes, angular spots occur, which are yellow in white-fruited cultivars and red in black-fruited cultivars.		
VIRUSES					
Grapevine corky bark associated *closterovirus*	Corky bark of grapevine	No	Causes pits and grooves in the trunk and is transmitted by a vector. Transmitted by grafting. Transmission by contact between plants, seed or pollen has not been reported.	Brunt *et al*., 1996	No
Grapevine fanleaf *nepovirus*	Grapevine court-noué virus	Yes	May be associated with the endosperm of grape seeds, but is not known to be transmissible by grape seeds. The virus is transmissible by nematode vectors and mechanical inoculation. No restrictions are placed on grapes being moved from the Rutherglen area because of this virus.	CABI, 2002; Habili *et al*, 2001	No
Grapevine leaf roll associated *closterovirus*	Grapevine leafroll disease	Yes	Grapevine leafroll associated viruses are phloem-restricted viruses. Once the grape bunch has been severed from the vine, collapse and dessication of the peduncles associated with the bunch will begin. It is not believed that insect vectors	CABI, 2002	No

Pest	Common name	Associated with table grape cluster (yes/no)	Comment	Reference	Consider pest further? (yes/no)
			(mealybugs, soft scales) will feed on latex from the severed peduncles. It is also believed that, except under very exacting laboratory conditions, peduncles would not be propagatable.		
Tomato ringspot *nepovirus*	Grapevine yellow vein	No	No evidence to suggest this virus is seed borne in tablegrapes.	CABI, 2002	No

(WA only) – these species are considered further only with respect to the State of Western Australia due to their absence from this State.

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APPENDIX 2 PEST CATEGORISATION FOR TABLE GRAPES FROM CHILE (PEST PLANTS)

APPENDIX 2A: PEST PLANTS (PRESENCE AND ABSENCE IN AUSTRALIA)

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
PEST PLANTS						
*Achillea millef*olium L.	Yarrow; milfoil	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Agrostis stolonifera L.	Blown grass	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Aira caryophyllea L.	Silvery hairgrass	Yes	Marticorena & Quezada, 1985	Yes[1]	Weiller *et al.,* 1995	Yes
Allium vineale L.	Crow garlic	Yes	Marticorena & Quezada, 1985	Yes[1,2]	Hnatiuk, 1990	Yes
Amaranthus albus L.	Tumbleweed	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Amaranthus deflexus L.	Spreading amaranthus	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
*Amaranthus r*etroflexus L.	Redroot amaranth	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Amaranthus viridis L.	Green amaranth	Yes	Matthei, 1995	Yes	Holm *et al.,* 1991	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Ambrosia artemisiifolia L.	Annual ragweed	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Amsinckia calycina (Moris) Chater	Yellow burrweed	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Anagallis arvensis L.	Scarlet pimpernel	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Apium nodiflorum Reichb.	Fool's Watercress	Yes	Matthei, 1995	Yes	Genus permitted	No
Arctotheca calendula (L.) Levyns	Capeweed	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Artemisia absinthium L.	Wormwood	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Avena barbata Pott. Ex Link	Bearded oat	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Avena fatua L.	Wild oat	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Avena sterilis L.	Sterile oat	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Avena strigosa Schreb.	Sand oat	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Bidens aurea (Ait.) Sherff	Arizona beggarticks	Yes	Kogan, 1989	No[1,2]	No records found	Yes
Bidens pilosa L.	Cobbler's pegs	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Boerhavia erecta L.	Erect spiderling	Yes	Marticorena & Quezada, 1985	No[1,2]	Holm *et al.*, 1997	Yes
Brassica napus L.	Winter rape	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Brassica rapa L.	Turnip	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus catharticus Vahl.	Prairie grass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus diandrus Roth.	Great brome	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus hordeaceus L.	Soft brome	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus lanceolatus Roth.	Mediterranean brome	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Bromus madritensis L.	Madrid brome	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus racemosus L	Brome grass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus secalinus L.	Brome grass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus sterilis L.	Brome grass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Bromus tectorum L.	Drooping brome	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Calandrinia compressa DC.	Parakeelya	Yes	Matthei, 1995	Yes	Genus permitted	No
Calendula arvensis L.	Field marigold	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Calystegia sepium (L.) R. Br.	Greater bineweed	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Capsella bursa-pastoris (L.) Medik.	Shepherd's purse	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Cardamine hirsuta L.	Common bittercress	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Cardaria draba (L.) Desv.	Hoary cress	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Carduus nutans L.	Nodding thistle	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Carduus pycnocephalus L.	Slender thistle	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Carthamus lanatus L.	Saffron thistle	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Cenchrus echinatus L.	Mossman river grass	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Cenchrus incertus Curt.	Spiny burrgrass	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Centaurea solstitialis L.	Pineapple weed	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Chamomilla suaveolens (Pursh) Rydb. (Syn. *Matricaria matricarioides*)	Chamomile	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Chenopodium album L.	Fat hen	Yes	Marticorena & Quezada, 1985	Yes[1,2]	Hnatiuk, 1990	Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Chenopodium ambrosioides L.	Wormseed	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Chenopodium ficifolium Sm.	Figleaf goosefoot	Yes	Matthei, 1995	No[1,2]	No records found	Yes
Chenopodium murale L.	Nettle-leaved goosefoot	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Chloris gayana Kunth.	Rhode grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Chloris virgata Sw.	Feathertop Rhode grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Chrysanthemoides moniliferum (L.) Norlindh	Boneseed	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Chrysanthemum segetum L.	Corn daisy	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Conium maculatum L.	Hemlock	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Convolvulus arvensis L.	Field bineweed	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Conyza bonariensis (L.) Cronq.	Flaxleaf fleabane	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Cuscuta suaveolens Ser.	Fringed dodder	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Cynodon dactylon (LC Rich) Pers.	Couch	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Cynosurus echinatus L.	Rough dogstail	Yes	Marticorena & Quezada, 1985	Yes*	Hnatiuk, 1990	No
Cyperus rotundus L.	Nutgrass	Yes	Marticorena & Quezada, 1985	Yes[1,2]	Hnatiuk, 1990	Yes
Dactylis glomerata L.	Cocksfoot	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Datura stramonium L.	Common thornapple	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Digitaria ischaemum (Schreb.) Schreb.	Smooth summer grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Digitaria sanguinalis (L.) Scop.	Crabgrass	Yes	Marticorena & Quezada, 1985	Yes[1,3]	Hnatiuk, 1990	Yes
Diplotaxis muralis (L.) Dc.	Wall rocket	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Echinochloa crusgalli (L.) Beauv.	Barnyard grass	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Echium plantagineum L.	Paterson's curse	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Echium vulgare L.	Viper's bugloss	Yes	Marticorena & Quezada, 1985	Yes[1,2]	Hnatiuk, 1990	Yes
Equisetum bogotense Kunth	Horsetail	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Eragrostis virescens Presl.	Mexican lovegrass	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Erodium botrys (Cav.) Bertol.	Long storksbill	Yes	Matthei, 1995	Yes[*]	Hnatiuk, 1990	No
Erodium cicutarium (L.) L'Herit. ex W. Ait.	Common storksbill	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Erodium moschatum (L.) L'Herit. ex W. Ait.	Musky storksbill	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Eruca vesicaria Cav.	Roquette	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Euphorbia cyathophora Murr.	Painted spurge	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Euphorbia falcata L.	Sickleleaf spurge	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Euphorbia helioscopia L.	Sun spurge	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Euphorbia hirta var. *hirta* L.	Spurge	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Euphorbia lathyrus L.	Caper spurge	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Euphorbia maculata L.	Eyebane	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Euphorbia peplus L.	Petty spurge	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Euphorbia platyphyllos L.	Broad-leaved spurge	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Festuca arundinacea Schreb.	Tall fescue	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Galega officinalis L.	Goat's rue	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Galinsoga parviflora Cav.	Potato weed	Yes	Matthei, 1995	Yes*	Hnatiuk, 1990	No
Galium aparine L.	Cleavers	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Geranium dissectum L.	Cutleaf cranesbill	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Geranium molle L.	Dove's foot cranesbill	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Geranium robertianum L.	Herb Robert	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Glechoma hederacea L.	Ground ivy	Yes	Matthei, 1995	Yes	Genus permitted	No
Holcus lanatus L.	Yorkshire fog	Yes	Matthei, 1995	Yes	Hussey *et al.,* 1997	No
Hordeum jubatum L.	Foxtail barley	Yes	Matthei, 1995	Yes[1,2]	APDD, 2001	Yes
Hordeum marinum Huds.	Sea barley grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Hordeum murinum L.	Wild barley	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Hordeum secalinum Schreb.	Meadow barley	Yes	Matthei, 1995	Yes[1,3]	Lazarides *et al.,* 1997	Yes
Hypericum perforatum L.	St John's wort	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Hypochaeris glabra L.	Smooth cat's ear	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Juncus procerus E. Mey.	Rush	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Kickxia elatine (L.) Dum.	Twining toadflax	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Lactuca serriola L.	Prickly lettuce	Yes	Marticorena & Quezada, 1985	Yes[1,3]	Hnatiuk, 1990	Yes
Lamium amplexicaule L.	Deadnettle	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Lolium multiflorum Lam.	Italian ryegrass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Lolium perenne L.	Perennial ryegrass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Lolium temulentum L.	Bearded rye grass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Lotus uliginosus L. Schk.	Large bird's foot trefoil	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Malva nicaensis All.	Mallow of Nice	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Modiola caroliniana (L.) G. Don.	Red-flowered mallow	Yes	Marticorena & Quezada, 1985	Yes[1]	Hnatiuk, 1990	Yes
Oxalis corniculata L.	Yellow wood sorrel	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Oxalis pes-caprae L.	Soursob	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Panicum capillare L.	Witchgrass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Panicum miliaceum L.	Millet panic	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Paspalum dilatatum Poir.	Paspalum, Watergrass	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Paspalum paspalodes Scribn.	Buffalo quick paspalum	Yes	Matthei, 1995	Yes	Hussey *et al.,* 1997	No
Pastinaca sativa L.	Parsnip	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Pennisetum clandestinum Hochst. Ex Chiov.	Kikuyu grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Physalis pubescens L.	Downy groundcherry	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Picris echioides L.	Bristly oxtongue	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Plantago lanceolata L.	Ribwort	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Poa annua L.	Annual poa	Yes	Marticorena &	Yes	Hnatiuk, 1990	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
			Quezada, 1985			
Poa pratensis L.	Kentucky bluegrass	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Polygonum aviculare L.	Knotweed	Yes	Marticorena & Quezada, 1985	Yes*	Hussey *et al.*, 1997	No
Polygonum hydropiper L.	Water pepper	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Polygonum lapathifolium L.	Pale smartweed	Yes	Matthei, 1995	Yes[1,2]	Holm *et al.*, 1997	Yes
Polygonum persicaria L. (syn. *Persicaria maculosa*)	Red shank	Yes	Marticorena & Quezada, 1985	Yes[1,2]	Hussey *et al.*, 1997	Yes
Portulaca oleracea L.	Purselane	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Prunella vulgaris L.	Self-heal	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Ranunculus arvensis L.	Corn buttercup	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Ranunculus muricatus L.	Sharp fruited buttercup	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Ranunculus parviflorus L.	Small-flowered buttercup	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Ranunculus repens L.	Creeping buttercup	Yes	Matthei, 1995	Yes*	Hnatiuk, 1990	No
Raphanus raphanistrum L.	Wild radish	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Raphanus sativus L.	Radish	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Rapistrum rugosum (L.) All.	Turnip weed	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Rubus ulmifolius Schott	Blackberry	Yes	Marticorena & Quezada, 1985	Yes[3]	Hnatiuk, 1990	Yes

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Rumex acetosella L.	Dock	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Rumex conglomeratus Murr.	Clustered dock	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Rumex crispus L.	Curled dock	Yes	Marticorena & Quezada, 1985	Yes[1,2]	Hnatiuk, 1990	Yes
Rumex longifolius DC.	Long leaved dock	Yes	Matthei, 1995	No[1,2]	No records found	Yes
Salsola kali L. (varieties other than *S. kali* L. var. *kali* (synonym *S. australis*))	Prickly saltwort	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Senecio mikanioides Otto	Cape ivy, German ivy	Yes	Matthei, 1995	Yes[1,3]	Lazarides *et al.,* 1997	Yes
Senecio sylvaticus L.	Wood groundsel, mountain groundsel	Yes	Matthei, 1995	No[1,2]	No records found	Yes
Setaria pumila (Poir.) Roem. & Schult.	Queensland pigeon grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Setaria verticillata (L.) Beauv.	Whorled pigeon grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Setaria viridis (L.) Beauv.	Green pigeon grass	Yes	Matthei, 1995	Yes[1,3]	Hnatiuk, 1990	Yes
Silene gallica L.	French catchfly	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Silybum marianum (L.) Gaertn.	Variegated thistle	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Solanum nigrum L.	Black nightshade	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Sonchus arvensis L.	Corn sowthistle	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Sonchus asper (L.) Hill	Rough sowthistle	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No

Pest	Common name	Occurrence in Chile	Reference	Occurrence in Australia	Reference	Consider pest further? (yes/no)
Sonchus tenerrimus L.	Clammy sowthistle	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Sorghum halepense (L.) Pers.	Johnson grass	Yes	Marticorena & Quezada, 1985	Yes[1,3]	Hnatiuk, 1990	Yes
Spergula arvensis L.	Corn spurry	Yes	Matthei, 1995	Yes[1]	Hnatiuk, 1990	Yes
Stellaria media (L.) Cyr.	Chickweed	Yes	Marticorena & Quezada, 1985	Yes	Hnatiuk, 1990	No
Taeniatherum caput-medusae Boiss	Medusa-head	Yes	Matthei, 1995	Yes[1,2]	Hnatiuk, 1990	Yes
Taraxacum officinale Weber	Dandelion	Yes	Marticorena & Quezada, 1985	Yes	Hussey *et al.,* 1997	No
Tribulus terrestris L.	Caltrop	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Urtica dioica var. *mollis* L.	Stinging nettle	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Urtica urens L.	Dwarf nettle	Yes	Marticorena & Quezada, 1985	Yes	George, 1989	No
Veronica anagallis-aquatica L.		Yes	Marticorena & Quezada, 1985	Yes	Lazarides *et al.,* 1997	No
Veronica arvensis L.	Wall speedwell	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Veronica persica Poir.	Creeping speedwell	Yes	Matthei, 1995	Yes	Hnatiuk, 1990	No
Vicia sativa L.	Common vetch	Yes	Marticorena & Quezada, 1985	Yes[1,3]	Hnatiuk, 1990	Yes
Xanthium spinosum L.	Bathurst burr	Yes	Marticorena & Quezada, 1985	Yes[1,2]	Hnatiuk, 1990	Yes

[1] Not included in Schedule 5 (permitted seeds) of the *Quarantine Proclamation 1998* as at 21 May 2003

[2] The plant/seed has been assessed as a pest plant and its entry into Australia is not permitted.

[3] The plant/seed is permitted under specific import conditions as it is a potential vector of diseases of quarantine concern.

* The plant/seed has recently been assessed is permitted entry into Australia.

APPENDIX 2B: PEST PLANTS (ASSOCIATION WITH TABLE GRAPE CLUSTERS)

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
PEST PLANTS					
Aira caryophyllea L.	Silvery hairgrass	Grows in dry, open, rocky sites and sometimes invades rock gardens. In Australia, fruits begin to form in March. Individual spikelets of the inflorescence are tiny and the lemma has one or two awns. It is likely that seeds are dispersed via awns getting caught up in animal fur, clothing, and grape bunches, etc. Widespread in pastures and disturbed grassland.	Hussey *et al.,* 1997; Stewart & Hebda, 2000; Weiller *et al.,* 1995	1. Awned seeds are present during the grape production period, and have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in pastures and disturbed grassland demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the awned seed attaching to animal hair, fibre and machinery.	Yes
Allium vineale L.	Crow garlic	Grows in open warm-temperate regions occurring on a range of soils but preferring heavy fertile loams. Seeds are produced in summer. Black seed 3 to 4 mm long, flattened on one side, not common. Main reproduction via underground bulbs and aerial bulbils in the inflorescence. The main means of spread is through soil borne	Auld & Medd, 1992; Lamp & Collet, 1989; Parsons & Cuthbertson, 1992	1. Soil-borne bulbils, the main mode of reproduction, are not likely to enter Australia via grape bunches. 2. ** 3. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		bulbils (approx. the size of wheat grains) rather than windblown seed. Weed of cereal crops, pastures and roadsides.			
Ambrosia artemisiifolia L.	Annual ragweed	Grows in subhumid temperate to subtropical regions, thriving on a wide range of soils. Flowering begins in late summer-early autumn; the main flowering period extending from March to April in Australia. Spreads over long distances because beaked and spined seeds are adapted to dispersal by sheep, furred animals, woolpacks, bags and clothing, and by water. Weed of cultivated lands, stubble fields, old pastures, wastelands, roadsides, railway reserves and vacant lots.	Parsons & Cuthbertson, 1992	1. Spined seeds are present during the grape production period and have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in cultivated and wasteland demonstrates the ability of seed to establish if they fall in subhumid or subtropical regions. 3. Further spread is likely to occur via the beaked seeds attaching to animal hair, fibre and machinery.	Yes
Amsinckia calycina (Moris) Chater	Yellow burrweed	Grows in temperate regions on a wide range of soil in moderately warm, unshaded situations. In Australia, flowering commences in August, continuing for about 2 months. Fruit is a group of 4 nutlets surrounded by a bristled calyx. The main cause of dispersal has been through movement of contaminated farm equipment and through contaminated seed, fodder and stock. Weed of cereal crops, lucerne, vineyards, degraded pastures and roadsides, particularly	Parsons & Cuthbertson, 1992	1. Seeds are present during the grape production period and via the bristly fruit, have the potential to enter Australia by attaching to grape bunches. Is also known to be associated with vineyards. 2. This species is already present in Australia and its presence in sandy cultivated fields and roadsides demonstrates it ability to establish from seed in Australia. 3. Further spread is likely to occur via the	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		in dry, sandy areas.		bristled fruit attaching to animal hair, fibre and machinery.	
Avena barbata Pott. Ex Link	Bearded oat	In Australia, occurs at roadsides, wasteland and disturbed bush land. In Australia, fruits are produced from October to December. Possesses long, strong, twisted and geniculate awns that adhere tightly to the kernel (ie. seed). The awn on seeds adhere to animals, trousers etc. However, the principal means of dispersal has been as a contaminant of grains. Common weed of disturbed land.	Holm *et al.,* 1997; Hussey *et al.,* 1997; Weiller *et al.,* 1995	1. Although seed production does not coincide with grape production, mature seed may remain in the area (see seed-shedding trait of a similar species, *A. fatua*). Awned seeds have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in disturbed land demonstrates it ability to establish from seed in Australia. 3. Further spread is likely to occur via the awned seed attaching to animal hair, fibre and machinery.	Yes
Avena fatua L.	Wild oat	Cosmopolitan grass weed growing on nearly all soil types, but it is mainly associated with heavy and fertile soils and spring cereals. Plants may begin flowering by early July in Canada (mid-summer). Seed-set and seed shedding occurs over a prolonged time. This species possesses long, strong, twisted, and geniculate awns that adhere tightly to the kernel (ie. seed). The awn on seeds adhere to animals, trousers	Auld & Medd, 1992; BCMAFF, 2002; CABI, 2002; Holm *et al.,* 1977	1. Awned seeds are present during the grape production period, and have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in crops and pasture demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the awned seed attaching to animal hair, fibre	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		etc. Weed of other rotation crops, pasture, vineyards and wasteland.		and machinery.	
Avena sterilis L.	Sterile oat	Preferred habitat is on sand or loam. In Australia, fruits are produced from September to December. This species possesses long, strong, twisted, and geniculate awns that adhere tightly to the kernel (ie. seed). The awn on seeds adhere to animals, trousers etc. Weed of roadsides.	CABI, 2002; Paczkowska & Chapman, 2000; Weiller *et al.,* 1995	1. Although seed production does not coincide with grape production, mature seed may remain in the area (see seed-shedding trait of *A. fatua*). Awned seeds have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence along roadsides demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the awned seed attaching to animal hair, fibre and machinery.	Yes
Avena strigosa Schreb.	Sand oat	Flowers are produced in June-July in USA (summer). This species has spikelets which are glabrous and do not separate. Long, strong, twisted, and geniculate awns adhere tightly to each kernel (ie. seed). The awn of seeds adhere to animals, trousers etc. Often a weed of corn and oat fields.	CABI, 2002; Holm *et al.,* 1977; Reed, 1977	1. Awned seeds are present during the grape production period and have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in cultivated fields demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the awned seed attaching to animal hair, fibre	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
				and machinery.	
Bidens aurea (Ait.) Sherff.	Arizona beggarticks	Flowers of *B. pilosa* are produced in late autumn to summer. Fruit are achenes. Narrow fruits with barbed awns result in attachment to clothing and animals and wide dispersal. Spread is also via rhizomes.	Hussey *et al.,* 1997; Kogan, 1989; Lamp & Collet, 1989	1. Barbed seeds have the potential to enter Australia by attaching to grape bunches. 2. Not currently present in Australia. However, it is expected that *B. aurea* will be able to establish in Australia, since similar species in the *Bidens* genus have done so. 3. Further spread is likely to occur via the fruits attaching to animal hair, fibre and machinery.	Yes
Boerhavia erecta L.	Erect spiderling	This species occurs from sea level to 1500 meters and behaves as either an annual or perennial. A widely distributed weed in tropical and subtropical regions of the world. Seed are 1.5 mm long, smooth and inseparable from the fruit. Although seeds are not normally sticky, when wetted while still attached to the plant, a slimy substance forms, allowing seeds to adhere to passing animals. Is a common weed in cultivated fields, perennial crops, roadsides, pastures, gardens and wasteland. Is a weed of vineyards in Mexico.	Bromilow, 1995; Holm *et al.,* 1997	1. Although the sticky seeds would be able to attach to grape bunches, this weed is found in tropical and subtropical regions of the world. It is not likely that this weed is found in the Chilean vineyards (which are located within the desertic to temperate regions of Chile). 2. ** 3. **	No
Cardamine hirsuta L.	Common bittercress	Native to temperate areas of the Northern Hemisphere. Occurs in cool, moist, shaded	Auld & Medd, 1992; DGS, 2003; OSU,	1. Seed, via the explosive seed capsule, has the potential to enter Australia by	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		habitats. Flowers are produced for much of the year. Seed-pods of bittercress are known as siliques. Siliques are a dry, two-sided, dehiscent fruit. The seed capsules explode at the slightest touch when they are mature, dispersing their contents widely. A weed of gardens, nurseries and glasshouses.	2003	falling into grape bunches. 2. This species is already present in Australia and its presence in gardens demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via explosive mature seed capsules.	
Carduus nutans L.	Nodding thistle	Prefers open situations in temperate regions, usually on soils of moderate to high fertility in areas with an annual rainfall of 500 to 900 mm. Flowers are produced in spring, summer and autumn. The large flowerheads are sharply spined. A prolific seed producer. The pappus of the seed has fine-toothed bristles which assist with in adhering to clothing, wool, bags and fur. Has become a weed in well-drained annual pastures where there are disturbed sites at the end of summer.	Holm *et al.,* 1997; Parsons & Cuthbertson, 1992	1. Seed is present during the grape producing period and has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in annual pastures demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the spined flowerheads attaching to animal hair, fibre and machinery.	Yes
Cenchrus echinatus L.	Mossman river grass	Occurs in humid and subhumid tropical lowlands. It prefers moderate moisture and light, sandy, well-drained soils at low elevations. In Australia, burrs are formed between January and May. Inflorescence forms a dense cylindrical spike, 3-	CABI, 2002; Holm *et al.,* 1977; Parsons & Cuthbertson, 1992	1. Seeds are present during the grape producing period and via burred fruit, have the potential to enter Australia by attaching to grape bunches. Is also known to be associated with vineyards. 2. This species is already present in	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		10 cm long, 1-2 cm wide, with spikelets enclosed in spinous burrs Dispersal by spiny burrs, which adhere to any fibrous material. Weed in cultivated fields, pastures, roadsides, lawns, town pathways, river sand and beach margins. Also a weed of 18 crops in 35 countries, mostly in cereals, pulses, vineyards, plantation crops and pastures.		Australia and its presence in cultivated fields, pastures and roadsides demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the spiked inflorescence attaching to animal hair, fibre and machinery.	
Cenchrus incertus Curt.	Spiny burrgrass	Prefers temperate subhumid and semi-arid regions where it grows well on low-fertility, sandy, well-drained soils. Readily establishes on disturbed sites in the 250 to 500 mm annual rainfall belt. In Australia, burrs are produced from December to April. Seeds are enclosed within a spiny burr. Dispersal is by spiny burrs, which easily detach from the plant when mature and adhere to wool, fur, clothing, bags, and any other fibrous material. Is a weed of vineyards in the USA, and wasteland.	Lamp & Collet, 1989; Parsons & Cuthbertson, 1992	1. Seed is present during the grape producing period and via burred fruit, has potential to enter Australia by attaching to grape bunches. Is also known to occur in vineyards. 2. This species is already present in Australia and its presence in wasteland demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via burrs attaching to animal hair, fibre and machinery.	Yes
Chenopodium album L.	Fat hen	Thrives on all soil types, but prefers fertile, heavy soils. Most common around stockyards	BCMAFF, 2002; Holm *et al.,* 1977;	1. Although seed is present during the grape producing period, seeds are usually	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		and farm buildings where there is likely to be local accumulations of N and organic matter. Flowering can occur from May to October in Canada (late-spring to mid-autumn). Fruit is an utricle (a seed covered by the thin papery pericarp which often persists). Has no special seed dispersal system, and most seeds are deposited near the mother plant. However, human-facilitated seed dispersal commonly occurs via contaminants in crop seeds. Cosmopolitan weed of waste places.	Lamp & Collet, 1989	deposited at the base of the mother plant and are not likely to be found within grape bunches. 2. ** 3. **	
Chenopodium ficifolium Sm.	Figleaf goosefoot	No information has been found on *C. ficifolium*. However, information has been collated on similar species in the *Chenopodium* genus. Seed production is usually in summer and autumn months. They commonly have no special seed dispersal systems. Are commonly weeds of wasteland.	Lamp & Collet, 1989	1. Although seed may be present during the grape producing period, seeds have no adaptations for attachment or wind dispersal and are not likely to be found within grape bunches. 2. ** 3. **	No
Chenopodium murale L.	Nettle-leaved goosefoot	It is found in cropland and wastelands, especially those with rich fertile soils. Grows from sea level to over 2000 m and in open and shaded sites. In northern Europe, it flowers from July to September (mid-summer to early-autumn).	Auld & Medd, 1992; Holm *et al.,* 1997	1. Although seed is present during the grape producing period, seed has no adaptations for attachment or wind dispersal and are not likely to be found within grape bunches. 2. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		Seeds are 1.5 mm long, with a keeled margin, which give the appearance of a “pie-plate” rim. Seeds are borne in utricles in axillary panicles and have no special adaptations for wind dispersal, although dispersal by animals eating fruits may occur. Seeds are also often harvested with the surrounding crop. Principal weed of wheat, vegetables, vineyards (in South Africa), and dryland crops. Weed of wasteland in NSW.		3. **	
Chloris gayana Kunth.	Rhode grass	Used as a summer-growing pasture grass, it is scattered on road verges and disturbed sites throughout southern Western Australia. Flowers in summer and winter (January to May) in Australia. Seed are borne on a soft spikelet with short awns. Dispersal is via seeds and stolons. Commonly occurs along irrigation areas. Is a valuable fodder grass.	CABI, 2002; Hussey *et al.,* 1997; Lamp & Collet, 1989; Paczkowska & Chapman, 2000; Wells *et al.,* 1986	1. Seed is present during the grape producing period. Information on the dispersal of seed has not been found. However, awned seed has the potential to attach to grape bunches. 2. This species is already present in Australia and its presence in irrigated areas demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via awned seed and vegetative spread.	Yes
Chloris virgata Sw.	Feathertop Rhode grass	Occurs in coastal areas, slopes and plains of NSW and throughout Australia. Flowers in autumn and winter in Australia. Seed are borne on a soft spikelet with 2 distinct awns.	Auld & Medd, 1992; CABI, 2002; Hussey *et al.,* 1997; Wells *et al.,* 1986	1. Awned seed is present during the grape harvesting period and has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		Dispersal via seed. The structure of the panicles suggests that seeds are wind dispersed. Weed of cultivation, pastures and disturbed areas.		Australia and its presence in cultivated fields, pastures and disturbed areas demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via seed being wind dispersed.	
Chrysanthemoides monilifera (L.) Norlindh	Bitou bush, boneseed	Grows in subtropical and subhumid scrublands. Not restricted by climate, but prefers sandy or medium-textured soils and disturbed situations, particularly near the sea where it tolerates saline conditions. Flowers are produced all year round, with a peak in flowering from April to June in Australia. One seed is produced in each flowerhead, and fruits are in the form of a berry. Spread is by bird dispersal of fruit. Rabbits, foxes and cattle may also eat the fruit. Fruit and seeds can also be carried by water. A weed of native coastal vegetation.	Lamp & Collet, 1989; Parsons & Cuthbertson, 1992; Stuart, 2002	1. Although seed is present during the grape harvesting period, animal and water dispersal is not likely to result in seeds entering Australia within grape clusters. 2. ** 3. **	No
Cuscuta suaveolens Ser.	Fringed dodder	Grows in a wide range of environmental conditions. In Australia, flowers appear from October to January. Globular seed with a roughened coat. Most dispersal is by seed, but stem fragments (which can re-establish on a new host) can be	Lamp & Collet, 1989; Parsons & Cuthbertson, 1992	1. Reproductive stem fragments and seed are not likely to become associated with a grape cluster as they have no specialised attachment or wind dispersal mechanisms. 2. ** 3. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		spread on farm equipment or by water. A parasitic weed which can affect a wide range of broad-leaved plants, including lucerne and several vegetables.			
Cyperus rotundus L.	Nutgrass	Grows best in tropical and subtropical areas, with soils of moderate to high fertility and moderate moisture levels. Flowers are produced in late spring-summer months. A dark, ovoid achene about 1 mm long, beaked. Seed dispersal is most likely to be via wind. Most seeds are inviable when produced, and those that are not usually germinate poorly under field conditions. Spread is more commonly facilitated by rhizomes. Occasionally colonises vineyards.	Parsons & Cuthbertson, 1992	1. The small seeds are present at the start of the grape harvesting period and have the potential to enter Australia by falling into grape bunches. 2. This species is already present in Australia, however most seeds are inviable and, thus, it is unlikely that establishment will occur via seed. 3. **	No
Datura stramonium L.	Common thornapple	Prefers warm-temperate and subtropical regions. Principally found in open, warm situations and on fertile soils. Flowers may be produced 2-5 weeks after germination and germination can occur all year round. Fruit is a spiny globular capsule containing numerous seeds. Seed are commonly distributed as a contaminant of soybeans, in soil and in	Parsons & Cuthbertson, 1992	1. Although seed is present during the grape producing period, neither the large fruit capsule nor the seeds are likely to attach to grape bunches. 2. ** 3. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		agricultural seed stock. Water dispersal and human dispersal is also important. Are poisonous weeds of river flats, stockyards, etc.			
Digitaria ischaemum (Schreb.) Schreb.	Smooth summer grass	Grows in lawns, cultivated fields, gardens, roadsides, and waste areas. Flowers appear in warm seasons. Seed found on soft, spike-like panicles. Seed are awnless. Has the potential for short-distance wind dispersal. A vigorously growing grass species that is a common pasture weed.	Lorenzi and Jeffery, 1987; Stubbendieck *et al.,* 1994; USDA, 1971; Wheeler *et al.,* 1984	1. Seed may be present during the grape producing period and via wind dispersal, has the potential to enter Australia by falling into grape bunches. 2. This species is already present in Australia and its presence in pastures demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via wind dispersal of the seeds.	Yes
Digitaria sanguinalis (L.) Scop.	Crabgrass	Common in both temperate and tropical regions. Flowering occurs year-round in warm regions. In temperate regions, it produces seed from early summer until the first frost. Seeds are 2-3.5 mm long, attached to a finger-like, hairy spike (not sharp). Since this weed is commonly associated with crops, it is likely that dispersal is via human activities (via harvested crop seed). Weed of gardens, lawns, and waste areas. It is a principal weed in sugarcane in QLD and in a	Auld & Medd, 1992; Lamp & Collet, 1989; Holm *et al.,* 1977	1. Seed is present during the grape producing period and via wind dispersal, has the potential to enter Australia by falling into grape bunches. 2. This species is already present in Australia and its presence in lawns, gardens, and sugarcane demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the seeds contaminating the seed stock of harvested crops.	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		variety of crops such as coffee, rice, bananas and vegetables in many overseas countries.			
Echium plantagineum L.	Paterson's curse	Warm-temperate regions, principally in areas with a dominant winter rainfall, where it is found on a wide range of soils. In Australia, flowering commences in early spring and continues for several months. Fruit is a group of 4 nutlets surrounded by a persistent stiff bristled calyx. Seeds are strongly wrinkled and pitted. Spread by animals, although the most important means of dispersal has been as a contaminant of hay or grain. Weed of degraded pastures, roadsides and neglected areas in winter rainfall districts.	Parsons & Cuthbertson, 1992	1. Seed is present during the start of the grape producing period and via the bristled fruit, has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in degraded pastures and roadsides demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the bristled fruit capsule attaching to animal hair, fibre and machinery or as a contaminant of hay or grain.	Yes
Echium vulgare L.	Viper's bugloss	Prefers temperate regions at elevations up to 2100 m where it occurs over a wide range of soils but prefers the drier lighter ones. Flower production occurs several weeks later than *E. plantagineum* and extends over a longer period. Fruit is a group of 4 nutlets surrounded by a persistent stiff bristled calyx. Seeds are strongly wrinkled and pitted. Spread by animals, although the most important means of dispersal has been as a contaminant	Parsons & Cuthbertson, 1992	1. Seed is present during the start of the grape producing period and via the bristled fruit, has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in pastures and roadsides demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the bristled fruit capsule attaching to animal hair, fibre and machinery or as a	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		of hay or grain. A weed of pastures, roadsides and neglected areas.		contaminant of hay or grain.	
Eragrostis virescens Presl.	Mexican lovegrass	In Southern Africa it occupies temperate (with summer rainfall) and subtropical regions. A similar species, *Eragrostis curvula*, is spread by short-distance wind dispersal, as seed contaminants and in mud adhering to animals and machinery.	Parsons & Cuthbertson, 1992; Wells *et al.,* 1986	1. Based on the seed dispersal characteristics of the similar species *E. curvula*, *E. virescens* seed has the potential to enter Australia by falling into grape bunches after wind dispersal. 2. This species is already present in Australia, demonstrating that it is able to establish from seed in Australia. 3. Further spread is likely to occur via wind-dispersed seed.	Yes
Erodium moschatum (L.) L'Herit. ex W. Ait.	Musky storksbill	Commonly found on stony or poor gravely soils. Does not like cultivated soil. In Australia, flowers can appear between mid-winter and late-autumn. Seed production occurs from the fruit in autumn through to summer. When green, the fruits form a long beak shape like the head of a stork or heron, that split when ripe so that each seed is attached to a long, spirally-twisted awn. With changing humidity, the awn twists and relaxes, driving the seed into the ground. Erodium seeds are responsible for a large percentage of wool "burr" in sheep in some Australian districts.	Hussey *et al.,* 1997; Lamp & Collet, 1989; O'Sullivan & Moerkerk, 2000	1. Awned seed is present during the start of the grape producing period and has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in pastures and roadsides demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the awned seed attaching to animal hair, fibre and machinery.	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		Seed is moved via internal digestion of livestock, via attachment to livestock hides or wool, via birds or with the wind. Are found on farmland in Western Australia, especially poorly managed pastures and also on wasteland and roadsides.			
Euphorbia falcata L.	Sickleleaf spurge	Within Euphorbiaceae, seed capsules are commonly round, 3-chambered, with 1 seed per chamber. Seeds are ovoid to oblong, round in cross-section, and 2-3 mm long. The specific dispersal mechanism of this weed is not known. However, it is known that mature capsules of many spurges rupture and forcefully eject seeds some distance from the parent plant. Species within the Euphorbiaceae family are usually weeds of waste areas, disturbed sites, roadsides, fields, and pastures.	CDFA, 2001	1. Seed has the potential to enter Australia by falling into grape bunches upon explosion of the fruit capsule, if the weed is in close proximity to a grape vine. 2. This species is already present in Australia and its presence in pastures, fields and roadsides demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the explosive fruit capsules and then via seed being caught in mud on animals and machinery.	Yes
Euphorbia lathyrus L.	Caper spurge	Mainly occurs on the lighter soils of disturbed areas of temperate regions. Flowering begins in summer and continues through to autumn, both flowers and mature fruit being found at the same time on the one plant. Fruit is a 3-lobed pod-like capsule, containing 3 seeds (4-5 mm long with a prominent yellow	Parsons & Cuthberson, 1992	1. Seed has the potential enter Australia by falling into grape bunches upon explosion of the fruit capsule, if the weed is in close proximity to a grape vine. 2. This species is already present in Australia and its presence in gardens and roadsides demonstrates its ability to establish from seed in Australia.	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		'hat' at one end). Ripe fruit burst open explosively, throwing seeds for several meters. Further dispersal results from seed being caught up in mud on animals, machinery, etc. A weed of gardens, along roadsides and in waste places, especially close to rivers and streams.		3. Further spread is likely to occur via the explosive fruit capsules and then via seed being caught in mud on animals and machinery.	
Euphorbia maculata L.	Eyebane	Is adaptable to most soils and positions, and is frost resistant but drought tender. Flowers produced in spring and autumn. Fruit capsule is 1.1-1.4 cm long, with 3 lobes. Seed are oblong, 3-sided, and pitted. Dispersal is via seed. The specific dispersal mechanism of this weed is not known. However, it is known that mature capsules of many spurges rupture and forcefully eject seeds some distance from the parent plant. Is known to be a weed of gardens, cultivated fields, lawns, roadsides, pastures, and waste places.	Bodkin, 1993; CDFA, 2001; Stubbendieck *et al.,* 1994	1. Seed may be present during the grape producing period and has the potential to enter Australia by falling into grape bunches upon explosion of the fruit capsule, if the weed is in close proximity to a grape vine. 2. This species is already present in Australia and its presence in pastures, lawns and cultivated fields demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the explosive fruit capsules and then via seed being caught in mud on animals and machinery.	Yes
Euphorbia peplus L.	Petty spurge	A widespread weed of cultivation. It is very adaptable to a wide range of habitats, but it prefers warm, moist, shaded, fertile areas of	Auld & Medd, 1992; CABI, 2002; CDFA, 2001; Lamp & Collet,	1. Seed is present during the grape producing period and has the potential to enter Australia by falling into grape	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		high humidity throughout the tropics, subtropics and warm temperate world. Inflorescences are produced in spring in Australia. Seed possess deep regular pits. Within Species within the Euphorbiaceae family commonly have capsules that are round, 3-chambered, with 1 seed per chamber. Seeds ovoid to oblong, round in cross-section, and 2-3 mm long. The specific dispersal mechanism of this weed is not known. However, it is known that mature capsules of many spurges rupture and forcefully eject seeds some distance from the parent plant. A common weed of gardens, nurseries and other highly disturbed areas.	1989; Hussey *et al.,* 1997	bunches upon explosion of the fruit capsule, if the weed is in close proximity to a grape vine. 2. This species is already present in Australia and its presence in gardens demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the explosive fruit capsules and then via seed being caught in mud on animals and machinery.	
Euphorbia platyphyllos L.	Broad-leaved spurge	Within Euphorbiaceae, capsules are commonly round, 3-chambered, with 1 seed per chamber. Seeds ovoid to oblong, round in cross-section, and 2-3 mm long. The specific dispersal mechanism of this weed is not known. However, it is known that mature capsules of many spurges rupture and forcefully eject seeds some distance from the parent plant.	CDFA, 2001	1. Seed has the potential to enter Australia by falling into grape bunches upon explosion of the fruit capsule, if the weed is in close proximity to a grape vine. 2. This species is already present in Australia and its presence along roadsides, pastures and waste areas demonstrates its ability to establish from seed in Australia.	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		Species within the Euphorbiaceae family are usually weeds of waste areas, disturbed sites, roadsides, fields, and pastures.		3. Further spread is likely to occur via the explosive fruit capsules and then via seed being caught in mud on animals and machinery.	
Galium aparine L.	Cleavers	Grows in a wide range of situations but thrives in moist habitats. It prefers nutrient-rich soils, but has been reported on sandy, loam and heavy organic soils. In Canada, mature fruits are produced from late June to mid-July (summer months). The surfaces of the fruit are covered with hooked bristles. Reproduces solely by seed. Seeds are dispersed by wind, water, animals and farm machinery or as contaminants of crop seed. Hooked bristles on fruits and seeds attach to animal fur, feathers or human clothes and bags. Fruits also have a hollow space near to the point of attachment between the two halves, which enables them to float on water. Found on a wide range of crops as well as in meadows, pastures, rich woodlands, thickets, hedgerows, seashores, waste ground and along fence rows.	CABI, 2002; Holm *et al.,* 1977; Lamp & Collet, 1989	1. Bristled fruit are present during the grape harvesting period and have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in waste areas and pastures demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the bristled fruit attaching to animal hair, fibre and machinery.	Yes
Hordeum jubatum L.	Foxtail barley, squirrel tail	Grows at all elevations except in the alpine zone. It is common along roadsides, in moist meadows, and along lakeshores. It tolerates	Auld & Medd, 1992; Lazarides *et al*., 1997; Stewart &	1. Awned seeds fall from the plant during the grape producing period and have the potential to enter Australia by attaching to	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		alkaline soils, and favours disturbed sites in urban settings. Seeds are produced during cool seasons (ie. late-autumn, winter or early-spring). Seeds possess sharp awns. Dispersal is likely to be by seed getting caught up in the fur of animals, clothing, etc. Weed of sheep areas and winter-growing crops.	Hebda, 2000; Stubbendieck *et al*., 1994	grape bunches. 2. This species is already present in Australia and its presence in sheep areas and winter-growing crops demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via awned seed attaching to animal hair, fibre and machinery.	
Hordeum marinum Huds.	Sea barley grass	Found on disturbed or grazed, often saline sites. Most *Hordeum* spp. flower in spring. Seeds possess sharp awns. Dispersal is likely to be via seed getting caught up in the fur of animals, clothing, etc. Weed of sheep areas, winter-growing crops.	Auld & Medd, 1992; Hussey *et al.,* 1997	1. Although seed production starts in spring (ie. prior to the start of the grape production period), mature seed may remain in the area. Awned seeds have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in sheep areas and winter-growing crops demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via awned seed attaching to animal hair, fibre and machinery.	Yes
Hordeum murinum L.	Wild barley	In Britain, it is most abundant in areas of low rainfall and warm temperatures. Mature seed fall from the plant from July to	Auld & Medd, 1992; Holm *et al.,* 1997	1. Awned seeds fall from the plant during the grape producing period and have the potential to enter Australia by attaching to	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		August in the northern hemisphere (summer months). Seeds possess long, stiff, barbed awns. Dispersal is likely to be via seed getting caught up in the fur of animals, clothing, etc. Weed of disturbed, open habitats, pastures, cereals, roadsides, railways, wasteland, sheep areas and winter-growing crops. Weed of vineyards in Spain.		grape bunches. 2. This species is already present in Australia and its presence in pastures, vineyards and open habitats demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via awned seeds attaching to animal hair, fibre and machinery.	
Hordeum secalinum Schreb.	Meadow barley	Most *Hordeum* spp. flower in spring. Seeds possess sharp awns. Dispersal is likely to be by seed getting caught up in fur of animals, clothing, etc. Weed of sheep areas and winter-growing crops.	Auld & Medd, 1992; Hussey *et al.,* 1997	1. Although seed production starts in spring (ie. prior to the start of the grape production period), mature seed may remain in the area. Awned seeds have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in sheep areas and winter-growing crops demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via awned seeds attaching to animal hair, fibre and machinery.	Yes
Hypericum perforatum L.	St John's wort	Prefers humid and subhumid temperate regions, growing on drier sites at elevations between 500 and 100 m.	Parsons & Cuthbertson, 1992	1. Sticky fruit are present during the start of the grape harvesting period and have the potential to enter Australia by sticking to	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		In Australia, flowers, and subsequently seed, are produced in November and continue well into summer. Fruit is a sticky, many-seeded capsule. Seeds are very small (1 mm long). A prolific seed producer. Dispersal is by water, mud, soil, and agricultural produce, particularly hay and chaff. A weed of poorly managed grazing land, sparse bushland, roadsides, and neglected areas.		grape bunches. 2. This species is already present in Australia and its presence along roadsides and in grazing land demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via sticky or mud-captured seeds attaching to animal hair, fibre and machinery and as a contaminant of hay and chaff.	
Hypochaeris glabra L.	Smooth cat's ear	In southern Africa, it inhabits temperate (both winter and summer rainfall areas) to subtropical regions. Can flower all year round, but most commonly in spring. Seeds have a pappus. An inflorescence is commonly referred to as "Santa Claus." Seeds are wind dispersed. Common weed of lawns, gardens, roadsides, pastures, abandoned cultivation, disturbed habitats and wasteland.	Auld & Medd, 1992; Hussey *et al.,* 1997; Wells *et al.,* 1986	1. Seed is present during the grape harvesting period and has the potential to enter Australia by getting caught in grape clusters. 2. This species is already present in Australia and its presence in lawns, gardens, roadsides and wasteland demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the inflorescence being wind dispersed and/or caught up in machinery.	Yes
Juncus procerus E. Mey.	Rush	No information was found on J. procerus. However, information on similar species in the *Juncus* genus has been collated. Often grow in coastal marsh situation and	Lamp & Collet, 1989; Sainty *et al.,* 1998	1. Although seed is present during the grape producing period, it is not likely to attach to grape clusters. 2. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		inland where silt has been deposited. Are salt tolerant species. Flowers are mostly produced from late-spring to autumn. Can usually produce both vegetatively and from seed. Seed are commonly spread by water. Common in wet healthland, watercourses and grassland.		3. **	
Kickxia elatine (L.) Dum.	Twining toadflax	Grows in gravelly lateritic soils. Flowers, and subsequently seed, are produced from November to April in Australia. Flowers have a long, straight, sharp spur. When ripe, seed capsules open to release round, brown seeds with honeycomb-like surfaces. Seed have potential for wind-dispersal. Grows in disturbed sites such as roadsides, settled and cultivated areas.	Hussey *et al.,* 1997; Paczkowska & Chapman, 2000; UCIPM, 2000	1. Seed are present during the grape producing period and via wind dispersal, have the potential to enter Australia by getting caught up in grape bunches. 2. This species is already present in Australia and its presence along roadsides and in cultivated areas demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via wind dispersal of the seeds.	Yes
Lactuca serriola L.	Prickly lettuce	Prefers light, well-drained soils in an open, sunny position. Is drought and frost-tender. Summer growing annual in Australia (ie. suggests that seed are produced in summer months). Seed are small, and enclosed within the fruit (an achene). The achene is about 3 mm long,	Auld & Medd, 1992; Bodkin, 1993; Hussey *et al.,* 1997; Stubbendieck *et al.,* 1994	1. Seed is present during the grape producing period and via the beaked achenes, has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence along roadsides and in gardens and cultivated	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		contains 1 seed, and is beaked. Dispersal is via seed. Common weed of crops, gardens, roadsides, wasteland, disturbed bushland, and cultivated and degraded pastures. Frequent in horticultural areas.		pastures demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the beaked achenes attaching to fibre and machinery.	
Modiola caroliniana (L.) G. Don.	Red-flowered mallow	An annual or perennial herb. It is tolerant to salt and drought. Flowers are produced in late spring and summer. Fruits are black when mature. They are grooved and villous above and hairless and wrinkled on the under surface. Seed are about 1.5 mm long. Dispersal is via seed and stoloniferous stems. Weed of grasslands, pastures, orchards, wasteland and lawns.	Gardenet, 2003; Hinsley, 2003; Hussey *et al.,* 1997; Lamp & Collet, 1989	1. Reproductive stem fragments and seed are not likely to become associated with a grape cluster as they have no specialised attachment or wind dispersal mechanisms. 2. * 3. *	No
Oxalis corniculata L.	Yellow wood sorrel	Cosmopolitan weed of the tropical and temperate zones and is common in gardens, lawns, arable land, pastures and waste areas. Flowers occur throughout the year in tropical climates and during spring months in temperate regions. It is assumed that seeds are produced during spring and summer months in temperate regions. Seeds (1.5 mm long) are borne within a capsule and seeds are ejected from the capsule. Its	Holm *et al.,* 1977; Lamp & Collet, 1989	1. Seed is present during the grape harvesting period and has the potential to enter Australia by landing within grape bunches upon explosion of the fruit capsule, if in close proximity to a grape vine. 2. This species is already present in Australia and its presence in pastures and orchards demonstrates its ability to establish from seed in Australia.	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		presence on islands suggests that seed may also be dispersed by birds. Weed of pastures, orchards, tea, vegetables and sugarcane.		3. Further spread is likely to occur via seeds being dispersed by the explosive fruit capsule and by bird dispersal.	
Panicum capillare L.	Witchgrass	Found in the tropics and subtropics. Flowers are produced in summer and autumn. The inflorescence in a dense panicle of small seeds. Seed is likely to be wind dispersed. Found along roadsides and in other disturbed sites in Western Australia.	Hussey *et al.,* 1997	1. Although seed are present during the grape harvesting period, it is not likely that this weed is found within the Chilean vineyards (usually found in tropical and subtropical regions). 2. ** 3. **	No
Panicum miliaceum L.	Millet panic	Commonly found in crops and along field edges and roadsides. Particularly adapted to sandy, droughty soils, but can grow on a wide range of soils. Inflorescences are produced in summer. Seeds mature from late August through to September in Canada (late-summer to early-autumn). Seeds are smooth, shiny, olive brown to black. Seeds are likely to be dispersed by human activities (via harvesting crop seed). Vigorous competitor with row crops, corn, soybeans, and beans.	BCMAFF, 2002; Hussey *et al.,* 1997	1. Seed is present during the grape producing period and is able to enter Australia by getting caught up in machinery and then transferred to grape clusters. 2. This species is already present in Australia and its presence in crops demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via seed getting caught up in machinery or by contamination of crop seeds.	Yes
Paspalum paspalodes Scribn.	Buffalo quick paspalum	Is widespread in warm temperate and tropical regions of the world. Usually found near or in fresh water.	Auld & Medd, 1992; CABI, 2002; Lamp & Collet, 1989; Hussey	1. This weed is not likely to be in close proximity to Chilean grape vines (ie. it prefers pools of fresh water).	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		Flowers in summer in Australia. The inflorescence is a panicle of two green racemes, 2.5-2.8 mm long. Dispersal is commonly via rhizomes and stolons. Thrives in wet places and sometimes floats on water. Is a weed of damp places. Serious weed of drainage channels, irrigation areas, cultivation, and lawns.	*et al.,* 1997	Furthermore, rhizomes and stolons are not likely to attach to grape bunches. 2. ** 3. **	
Pennisetum clandestinum Hochst. Ex Chiov.	Kikuyu grass	Grows best in areas with mild winters that receive some summer moisture. Plants tolerate periods of drought, light shade and most soil types, but do not survive prolonged periods of freezing temperatures. Flowers produced from April to October in California (mid-spring to mid-autumn). Reproduces vegetatively by creeping rhizomes and stolons and to a lesser extent, by seed. Dispersal via stem fragments getting caught up in agricultural machinery. When seed is produced, it can disperse via large ruminants (eg, cattle). Weed of gardens, orchards, cropland, forested sites and cultivation and can impede drainage in waterways.	Auld & Medd, 1992; CABI, 2002; CDFA, 2001	1. Rhizomes and stolons are not likely to attach to grape bunches and the seed have no adaptations that would enable them to become associated with grape bunches. 2. ** 3. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
Polygonum hydropiper L.	Water pepper	Commonly found in moist soil or standing water (eg, in shallow water along the banks of streams and in wet depressions, on river flats and in swamps). Also occurs in crops and pastures with poorly drained soils. Grows in most temperate and subtropical climates. Flowers produced in early to mid-summer. Fruits are shed from late-summer until plant death (by frost or drought). Triangular seed, 2.0-3.5 mm long. Seed dispersal is via water and human activities (spread in poultry feed and small grass seed). Weed of lowland rice and wheat, vegetables and other irrigated crops.	Holm *et al.,* 1997; Lamp & Collet, 1989	1. This weed is not likely to be in close proximity to Chilean grape vines (ie. it prefers pools of fresh water). Furthermore, seed do not possess adaptations that would enable them to become associated with a grape bunch. 2. ** 3. **	No
Polygonum lapathifolium L.	Pale smartweed	Typically grow on the edges or in ponds, marshes, lakes, streams, and areas subject to seasonal flooding or periodic standing water. Flowers produced from June-October in California (early-summer to mid-autumn). Seed are about 2 mm long, flattened, achenes. Seed is most commonly dispersed as crop seed contaminants but also has been recorded as being dispersed by rabbits. Can invade rice fields, pastures, orchards and irrigated crops and stands of emergent plants can impede the flow of water in irrigation	CDFA, 2001; Holm *et al.,* 1997	1. This weed is not likely to be in close proximity to Chilean grape vines (ie. it prefers pools of fresh water). Furthermore, seeds do not possess adaptations that would enable them to become associated with a grape bunch. 2. ** 3. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		ditches, canals and drainage areas.			
Polygonum persicaria L.	Red shank	Occurs in wet places and is a weed of cultivation in orchards and market gardens. Completes its whole lifecycle in spring. Seeds are 2-3 mm long, black and shiny. A prolific seed producer. Most commonly spread as crop seed contaminants, in water and by animals. Weed of cereals, oilseeds, vegetables, berries and forages.	BCMAFF, 2002; Holm *et al.,* 1997; Lamp & Collet, 1989	1. This weed is not likely to be in close proximity to Chilean grape vines (ie. it prefers pools of fresh water). Furthermore, seed is not present during the grape harvesting period and do not possess adaptations that would enable them to become associated with a grape bunch. 2. ** 3. **	No
Ranunculus arvensis L.	Corn buttercup	Other *Ranunculus* spp. prefer moist areas and flower in spring. The fruit is a bristled achene that allows for dispersal by attachment to animals. This species is a common weed found in vineyards. Plants of this genus are often found in undisturbed bushland in Western Australia.	Hussey *et al.,* 1997; CABI, 2002	1. Is known to be associated with vineyards. Seed may be present during the grape harvesting period and via the bristled fruit, has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in bushland demonstrates its ability to establish in Australia. 3. Further spread is likely to occur via spined seeds attaching to animal hair, fibre and machinery.	Yes
Ranunculus muricatus L.	Sharp fruited buttercup	Native to Mediterranean region, prefers to grow in winter-wet areas. Flowers are produced in late spring.	Auld & Medd, 1992; Hussey *et al.,* 1997; Lamp & Collet, 1989	1. Spined seeds are present during the grape harvesting period and have the potential to enter Australia by attaching to	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		Seeds have spiny, wart-like structures and a beak half as long as the seed. Seeds have spines that assist in dispersal by animals. A common weed of gardens, lawns, wetlands and grounds/pastures.		grape bunches. 2. This species is already present in Australia and its presence in gardens, lawns and pastures demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via spined seeds attaching to animal hair, fibre and machinery.	
Ranunculus parviflorus L.	Small-flowered buttercup	Other *Ranunculus* spp. flower in spring. Seeds have spines that assist in dispersal by animals. A common weed of gardens, lawns, wetlands and pastures.	Lamp & Collet, 1989	1. Spined seeds are present during the grape harvesting period and have the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in gardens, lawns and wetlands demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via spined seeds attaching to animal hair, fibre and machinery.	Yes
Rapistrum rugosum (L.) All.	Turnip weed	Prefers waste places and cultivated areas on a wide range of soils in warm-temperate to subtropical areas. Flowering occurs from August to early summer. Fruit are globular pods, containing 1-2 seeds, that are conspicuously beaked. A weed of winter cereals, waste places and	Auld & Medd, 1992; Lamp & Collet, 1989; Parsons & Cuthbertson, 1992	1. Seed is present during the grape producing period and via the beaked fruit, has the potential to enter Australia by attaching to grape clusters. 2. This species is already present in Australia and its presence in waste places and pastures demonstrates its ability to	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		over-grazed winter pastures.		establish from seed in Australia. 3. Further spread is likely to occur via beaked seedpods attaching to animal hair, fibre and machinery.	
Rubus ulmifolius Schott.	Blackberry	Grows in humid and subhumid temperate regions mainly in areas with fertile soils and an annual rainfall greater than 750 mm. In Australia, fruit is produced from January to March. Fruit is a berry containing one 2.0-3.0 mm long seed. Primarily dispersed by birds feeding on fruits. Common weed of roadsides, streambanks, neglected areas, farmlands, orchards, forest plantations and bushland. Is Chile's most widespread weed.	Parsons & Cuthbertson, 1992	1. Although seed is present during the grape producing period, it is not likely that bird dispersed seed will enter Australia via grape bunches. 2. ** 3. **	No
Rumex conglomeratus Murr.	Clustered dock	Prefers moist fertile loams, or clay soils in temperate regions. Flowering occurs in spring, and seeds mature 16-20 days later. Fruit possess 3 blunt-topped oblong valves. Well equipped for dispersal. Valves on the fruit play an important part in fruit dissemination by wind, water, animals and man. These valves are large wing-like and act as sails (wind dispersal), while the tubercles at their base act	Parsons & Cuthbertson, 1992	1. Valved fruit may be present during the grape harvesting period and has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence along roadsides and in pastures demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via valved	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		as floatation chambers (water dispersal). The short bristles on the broadleaf fruit help it attach to wool, fur, bags and clothing. Some fruit is also spread in mud adhering to hooves, machinery and other vehicles, and as contaminants of agricultural seeds. Weed of wetter areas along roadsides, pastures and disturbed areas.		fruit attaching to animal hair, fibre and machinery, or being dispersed by wind and/or water. May also be spread as a contaminant of agricultural seed stock.	
Rumex crispus L.	Curled dock	Grows on most soil types and favours humid conditions but can withstand periods of drought because of deep-growing roots. Flowering occurs in spring and seeds mature 16-20 days later. Seeds develop in achenes that are triangular in cross section, 2-3 mm long, with a shortly pointed base and a somewhat more long-pointed apex. The achenes are enclosed within three inner sepals (valves), which are heart-shaped with entire margins, brown at maturity. Primarily a weed in grasslands (pastures and meadows) and on arable land under perennial crops. But also a weed in orchards and vineyards and other fruit gardens. It otherwise occurs as a ruderal on shores, roadsides, ditch banks and courtyards.	CABI, 2002; Parsons & Cuthbertson, 1992	1. Is known to be associated with vineyards. Seed may be present during the grape producing period and via stiff valves on the fruit, has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence along roadsides and in vineyards demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via valved seed attaching to animal hair, fibre and machinery or being wind dispersed.	Yes
Rumex longifolius	Long-leaved	Little information has been found on *R.*	CABI, 2002; Lamp &	1. Seed may be present during the grape	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
DC.	dock	*longifolius*. However, information on similar species in the *Rumex* genus has been collated. Prefers most soil types. Seed production commonly occurs in spring. *R. longifolius* is morphologically similar to *R. crispus* (see above). Fruit possess 3 blunt-topped oblong valves. Dispersal is commonly via fruit attaching to moving objects, such as animals and machinery.	Collet, 1989; Parsons & Cuthbertson, 1992	producing period and via stiff valves on the fruit, has the potential to enter Australia by attaching to grape bunches. 2. Not currently present in Australia. However, it is expected that *R. longifolius* will be able to establish in Australia, since similar species in the *Rumex* genus have done so. 3. Further spread is likely to occur via valved seed attaching to animal hair, fibre and machinery.	
Salsola kali L. (varieties other than *S. kali* L. var. *kali* (synonym *S. australis*))	Prickly saltwort	Grows at low- to mid-elevations along roadsides, railroad tracks, fields, and disturbed or unoccupied sites. Grows on well-drained, uncompacted soils with a sunny exposure. Seeds mature during August-November in Canada (late-summer to late-autumn). Small, 1-seeded fruits with winged tips. Seeds are round, black, smooth and shiny. Dispersed by plant breaking off at the root at maturity and plant tumbling in the wind. Main cause of spread internationally and nationally as a contaminant in wheat and grains, as well as in straw and hay. Weed of dryland agriculture, disturbed rangeland and disturbed habitats.	Auld & Medd, 1992; BCMAFF, 2002; Holm *et al.,* 1997	1. Although seed is present during the grape producing period, it is not likely that seed will be become associated with a grape bunch via the tumbling plant. 2. ** 3. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
Senecio mikanioides Otto.	Cape ivy, German ivy	Prefers light-medium, well-drained soils in an open, sunny position and is drought resistant but frost tender. In Australia, flowers, and subsequently seed, are produced from July to August. Dispersal can be via seed or cuttings.	Bodkin, 1993; Lamp & Collet, 1989	1. Seed is not present during the grape producing period and thus, are not likely to be associated with a grape bunch. 2. ** 3. **	No
Senecio sylvaticus L.	Wood groundsell, Mountain groundsell	Prefers gravely, well-drained soils of an alpine or subalpine climate in an open, sunny position,and is frost resistant but drought tender. Flowers produced in late summer. Dispersal is via seed, most likely facilitated by herbivore grazing and machinery. In Australia, other *Senecio* spp. are commonly found along roadsides, in paddocks, woodland and wasteland.	Bodkin, 1993; Hussey *et al.,* 1997	1. Seed is present during the grape producing period and is able to enter Australia by getting caught up in machinery and then transferred to grape clusters. 2. This species is already present in Australia and its presence along roadsides and in paddocks demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via seed getting caught up in machinery or by herbivore dispersal.	Yes
Setaria pumila (Poir.) Roem. & Schult.	Queensland pigeon grass	A plant of disturbed ground, over a wide range of latitudes from northern temperate, through the tropics to southern temperate, and at elevations up to 300 m. It thrives best on fertile soils, especially those rich in nitrogen. Inflorescences produced in summer in Australia.	CABI, 2002; Hussey *et al.,* 1997	1. Seed is present during the grape producing period and is able to enter Australia by getting caught up in machinery and then transferred to grape clusters. 2. This species is already present in Australia and its presence in crops,	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		The inflorescence is an erect spike-like panicle. Seeds are awnless, convex and wrinkled on one face, flat on the other, and 1.5-3 mm long. Seeds may be spread in contaminated crop seed, by machinery and by water. Occurs as a weed in crops, pastures, roadsides and waste places.		pastures and waste places demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via seed getting caught up in machinery or by contamination of crop seeds.	
Setaria verticillata (L.) Beauv.	Whorled pigeon grass	A plant of disturbed areas, especially in annual and perennial crops, but also along roadsides and in waste places over a wide ecological range from northern temperate, through the tropics, to southern temperate areas. It also occurs at high altitude in the tropics, for example, in East Africa. Flowering occurs from July to November in Iraq (warm temperatures). Inflorescence is a narrow, spike-like panicle, 5-15 cm long. Dispersal is assisted by complete inflorescences being carried on clothing or animal fur assisted by barbed bristles on the spikelets. Weed of a wide range of tropical and temperate crops. Weed of maize, sorghum, sugarcane, and wheat crops.	CABI, 2002; Holm *et al.,* 1977; Wheeler *et al.,* 1984	1. Seed is present during the grape harvesting period and via the bristled inflorescence, has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in crops demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the bristled inflorescence attaching to animal hair, fibre and machinery.	Yes
Setaria viridis (L.)	Green pigeon	Commonly found in the temperate zone.	Holm *et al.,* 1977	1. Seed is present during the grape	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
Beauv.	grass	Flowering occurs from late-summer to autumn. Fruit consist of 2 hard scales that enclose the grain. Grains are flat, and 2.25 mm long. A prolific seed producer, commonly dispersed by contaminating crop seeds. The barbed bristles on the spikelet may adhere to clothing, wool, fur or other surfaces. May also be dispersed by birds. Weed of cultivated fields, gardens, waste places, disturbed areas and along roads. Is frequently found in fertile soils.		harvesting period and via the bristled inflorescence, has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence along roadsides and in wasteplaces demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the bristled inflorescence attaching to animal hair, fibre and machinery.	
Sonchus arvensis L.	Corn sowthistle	Mainly occurs in temperate and subtropical areas with humid climates. It does not thrive in warm tropical climates. Grows on most soil types, but prefers moist mineral soils. Flowering occurs from high summer to autumn. Seeds are 2.5-3.5 mm long and ribbed with a parachute-like pappus. A prolific seed producer. Dispersal is mainly by water and, via the pappus attached to seeds, short distance wind dispersal. Weed of agricultural and horticultural crops. It occurs in fields with perennial crops, particularly in orchards and vineyards.	CABI, 2002; BCMAFF, 2002; Holm *et al.,* 1997	1. Is known to be associated with vineyards. Seed is present during the grape harvesting period and via wind dispersal, has the potential to enter Australia by falling into grape bunches. 2. This species is already present in Australia and its presence in vineyards and perennial crops demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via seed being dispersed by water and wind.	Yes
Sorghum halepense (L.) Pers.	Johnson grass	Occurs in temperate, subtropical and tropical regions, where it commonly inhabits wet places.	Lamp & Collet, 1989; Parsons &	1. Spikey seed is present during the grape harvesting period and has the potential to	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		In Australia, flowering occurs about 7 weeks after seedling emergence (seeds germinate in spring and early summer) and continues until autumn. Inflorescences possess spikelets on the outer surface. Seeds dispersal is facilitated by the detached spikelets, which are blown in the wind, float on water, stick to wool and fur and pass relatively unharmed through animal and bird digestive tracts. Seed may also be spread as a contaminant in agricultural produce and in mud sticking to vehicles. Weed of cultivation in irrigated areas.	Cuthbertson, 1992	enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence in cultivated areas demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the spikey seed attaching to animal hair, fibre and machinery, being dispersed by wind or water, contaminating agricultural seed and by being transported by herbivores.	
Spergula arvensis L.	Corn spurry	A cosmopolitan weed that is most widely distributed in the temperate zones, but does enter the tropics at higher elevations. Prefers acidic, light, soils but can also grow well on heavy soils. In Canada, flowering occurs from June through October (summer-autumn) and mature seed fall from the plant from July onward (summer onwards). Fruit is a round, one-celled capsule splitting into 5 segments and containing many seeds. Short distance dispersal is by water and by mud	Holm *et al.,* 1977; Lamp & Collet, 1989	1. Seed is present during the grape producing period and has the potential to enter Australia by sticking (when damp) to grape bunches. 2. This species is already present in Australia and its presence in cultivated areas demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the seed being water dispersed, eaten by birds, or caught up in mud and transported further.	Yes

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		on animals, the feet of humans and by agricultural machines. Also, viable seed has been found in the droppings of birds and ruminants. Seeds are sticky when damp. Troublesome weed of cultivation.			
Taeniatherum caput-medusae Boiss.	Medusa-head	Typically invades rangeland communities. It occurs in disturbed sites, grassland, oak woodlands and agronomic fields. Growth is best on clay soils or where deep soil moisture is available late in the growing season. Flowers appear in the summer months. Seeds possess barbs. Spikes, consisting of the ascending glumes, remain intact for a long period. Some florets can remain attached to spikes long after plants turn brown. Prolific seed producer, dispersing seed via wind, soil movement, human activities and by adhering to animals. Weed of pastoral land.	CDFA, 2001	1. Barbed seed is present during the grape producing period and has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence on pastoral land demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the barbed seed attaching to animal hair, fibre and machinery.	Yes
Vicia sativa L.	Common vetch	Requires low temperatures for germination and growth, moderate to high temperatures for flowering and fruiting, and is susceptible to frost. Predominant in temperate to sub-tropical regions, and is well adapted to high altitudes. Occurs under semi-arid and irrigated conditions	Auld & Medd, 1992; CABI, 2002; Lamp & Collet, 1989; Hussey *et al.,* 1997	1. Although seed may be present during the grape producing period, it is unlikely that they will become associated with grape bunches. 2. ** 3. **	No

Pest plant	Common name	Available information (ie. habitat, reproduction, etc.)	References	Final assessment	Quarantine Pest? (yes/no)
		on a wide range of soil types of varying pH and salinity. Flowers are produced in spring in Australia. Pods are 2.5-4 cm long, hairy and contain 8-10 seeds. Seed dispersal via contamination of harvested cereal seed. Seeds are similar in size to lentil seed. Weed of annual and perennial cereal crops, channel banks, pastures, gardens and wasteland.			
Xanthium spinosum L.	Bathurst burr	Prefers exposed, moderately warm situation in temperate regions on highly fertile, disturbed soils. Often associated with sheep camps, watercourses, dam banks and floodplains. In Australia, burrs are produced in February. The fruit is a burr with numerous hooked spines. Well adapted to dispersal by animals and by man through attachment to virtually any fibrous material.	Parsons & Cuthbertson, 1992	1. Burred seed is present during the grape producing period and has the potential to enter Australia by attaching to grape bunches. 2. This species is already present in Australia and its presence at sheep camps and dam banks demonstrates its ability to establish from seed in Australia. 3. Further spread is likely to occur via the barbed seed attaching to animal hair, fibre and machinery.	Yes

** Indicates establishment and/or spread questions that did not require an answer due to the previous question being answered with a "No."

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APPENDIX 2C: PEST PLANTS (CHANGES SINCE TECHNICAL ISSUES PAPER)

Since the publication of the Technical Issues Paper a number of revisions have been made to the pest plant component of the assessment. The methodology used is described in Part A of this document and a summary of the specific changes is given below.

Thirty two (32) new pest plant species have been considered further in Appendix 2a, and 14 pest plant species have been re-assessed as not needing further consideration. Table 2c shows the pest plant species that have had a change in "consider further" status in Appendix 2a.

Table 2c Pest plant species with revised 'consider further' status in Appendix 2a

Pest plant species	Considered Further in TIP Appendix 1 (2002)		Considered Further in Draft IRA Appendix 2a (2003)	
	Yes	No	Yes	No
Aira caryophyllea L.		✓	✓	
Boerhavia erecta L.		✓	✓	
Cardamine hirsute L.		✓	✓	
Cardaria draba (L.) Desv.	✓			✓
Carduus pycnocephalus L.	✓			✓
Carthamus lanatus L.	✓			✓
Centaurea solstitialis L.	✓			✓
Chenopodium album L.		✓	✓	
Chloris gayana Kunth.		✓	✓	
Chloris vigata Sw.		✓	✓	
Conium maculatum L.	✓			✓
Convolvulus arvensis L.	✓			✓
Cyperus rotundus L.		✓	✓	
Digitaria sanguinalis (L.) Scop.		✓	✓	
Equisetum bogotense Kunth	✓			✓
Eremocarpus setigerus (Hook) Benth.	✓			✓
Erodium moschatum (L.) L'Herit. ex W. Ait.		✓	✓	
Euphorbia falcata L.		✓	✓	
Euphorbia lathyrus L.		✓	✓	
Euphorbia maculata L.		✓	✓	

Pest plant species	Considered Further in TIP Appendix 1 (2002)		Considered Further in Draft IRA Appendix 2a (2003)	
	Yes	No	Yes	No
Euphorbia peplus L.		✓	✓	
Euphorbia platyphyllos L.		✓	✓	
Hordeum marinum Huds.		✓	✓	
Hordeum murinum L.		✓	✓	
Hordeum secalinum Schreb.		✓	✓	
Hypochaeris glabra L.		✓	✓	
Kickxia elatine (L.) Dum.		✓	✓	
Lactuca serriola L.		✓	✓	
Modiola caroliniana (L.) G. Don.		✓	✓	
Oxalis pes-caprae L.	✓			✓
Panicum miliaceum L.		✓	✓	
Paspalum paspalodes Scribn.		✓	✓	
Pennisetum clandestinum Hochst. Ex Chiov.		✓	✓	
Polygonum aviculare L.	✓			✓
Polygonum hydropiper L.		✓	✓	
Ranunculus repens L.	✓			✓
Raphanus raphanistrum L.	✓			✓
Rapistrum rugosum (L.) All.		✓	✓	
Senecio mikanioides Otto		✓	✓	
Senecio sylvaticus L.		✓	✓	
Setaria pumila (Poir.) Roem. & Schult.		✓	✓	
Setaria viridis (L.) Beauv.		✓	✓	
Silybum marianum (L.) Gaertn.	✓			✓
Spergula arvensis L.		✓	✓	
Tribulus terrestris L.	✓			✓
Vicia sativa L.		✓	✓	

In Appendix 2b, four pest plant species (see Table 2d) that were previously not considered further in Appendix 1b of the TIP have been re-assessed as having quarantine pest status.

Table 2d Pest plant species with revised 'consider further' status in Appendix 2b

Pest plant species	**Considered Further in TIP Appendix 2 (2002)**		**Quarantine Pest in Draft IRA Appendix 2b (2003)**	
	Yes	**No**	**Yes**	**No**
Echium plantagineum L.		✓	✓	
Echium vulgare L.		✓	✓	
Eragrostis virescens Presl.		✓	✓	
Oxalis corniculata L.		✓	✓	

APPENDIX 3 DATASHEETS

GROUP 1 – MITES

Brevipalpus chilensis Baker [Acari: Tenuipalpidae] (False red mite)

Eotetranychus lewisi (McGregor) [Acari: Tetranychidae] (Lewis spider mite)

Oligonychus vitis Zaher & Shehata [Acari: Tetranychidae] (Table grape red mite)

Oligonychus yothersi McGreg. [Acari: Tetranychidae] (Avocado red mite)

Panonychus ulmi (Koch) [Acari: Tetranychidae] (European red mite)

Tetranychus desertorum Banks [Acari: Tetranychidae] (Tetranychid mite)

Synonyms and changes in combination (where applicable):

Eotetranychus lewisi: *Eutetranychus lewisi* (McGregor); *Tetranychus lewisi* McGregor.

Oligonychus yothersi: *Epitetranychus altaeae* von Haust; *Oligonychus major* Ewing; *Paratetranychus major* (Ewing); *Paratetranychus yothersi* (McGregor); *Tetranychus major* (Ewing); *Tetranychus yothersi* McGregor.

Panonychus ulmi: *Metatetranychus canestrinii* Oudemans; *Metatetranychus mali* Oudemans; *Metatetranychus pilosus* (Canestrini and Fanzago); *Metatetranychus ulmi* (Koch); *Oligonychus alni* Oudemans; *Oligonychus muscorum* Oudemans; *Oligonychus potentillae* Oudemans; *Oligonychus ulmi* (Koch); *Paratetranychis pilosus* (Canestrini and Fanzago); *Paratetranychis pilosus alboguttatus* Zacher; *Paratetranychus pilosus occidentalis* McGregor and Newcomer; *Tetranychus alboguttatus* Zacher; *Tetranychus pilosus* Canestrini and Fanzago; *Tetranychus Metatetranychus canestrinii* Oudemans; *Metatetranychus mali* Oudemans; *Metatetranychus pilosus* (Canestrini and Fanzago); *Metatetranychus ulmi* (Koch); *Oligonychus alni* Oudemans; *Oligonychus muscorum* Oudemans; *Oligonychus potentillae* Oudemans; *Oligonychus ulmi* (Koch); *Paratetranychis pilosus* (Canestrini and Fanzago); *Paratetranychis pilosus alboguttatus* Zacher; *Paratetranychus pilosus occidentalis* McGregor and Newcomer; *Tetranychus alboguttatus* Zacher; *Tetranychus pilosus* Canestrini and Fanzago; *Tetranychus pilosus* (Canestrini and Fanzago); *Tetranychus ulmi* Koch (Canestrini and Fanzago); *Tetranychus ulmi* Koch.

Tetranychus desertorum: *Septanychus argentinus; Septanychus deserticola; Septanychus texazona; Tetranychus argentinus; Tetranychus deserticola; Tetranychus opuntiae; Tetranychus texazona; Tetranychus thermophilus.*

Hosts:

Brevipalpus chilensis: *Actinidia chinensis* (kiwi fruit); *Ampelopsis* sp.; *Annona cherimola* (cherimoya); *Antirrhinium* sp.; *Catalpa speciosa*; *Chrysanthemum* sp.; *Citrus limon* (lemon) & *C. sinensis* (orange); *Cydonia oblonga* (quince); *Diospyros kaki* (persimmon); *Ficus carica* (fig); *Garcinia* sp.; *Jasminum angustifolium*; *Lugustrum sinensis*; *Malus pumila* (apple); *Pelagonium* sp.; *Prunus armeniaca* (apricot) & *P. dulcis* (almond); *Pyrus communis* (pear); *Rubus ideeus* (raspberry); *Strongylodon macrobotrys*; *Viburnum* sp.; *Vinca* sp.; *Vitis vinifera* (grape).

Eotetranychus lewisi: *Abutilon malacum*; *Acacia* sp. & *A. constricta* & *A. kamerunensis* & *A. pennatula*; *Ambrosia confertiflora*; *Antigonon leptopus*; *Bauhinia* sp. & *B. picta*; *Bebbia juncea*; *Bocconia arborea*; *Brickellia californica*; *Cardiospermum halicacabum*; *Carica papaya*; *Ceanothus* sp.; *Ceiba acuminata*; *Citrus limon* (lemon); *Citrus* sp.; *Cleome* sp.; *Cnidoscolus* sp.; *Coenothus* sp.; *Crotalaria* sp.; *Croton* sp. & *C. ciliato-glandulosus* & *C. glabellus* & *C. sonorae*; *Cucurbita* sp.; *Ditaxis lanceolata*; *Encelia frutescens*; Er*ythrina* edulis; *Euphorbia* sp. & *E. cyathophora* & *E. marginata* & *E. pulcherrima* (poinsettia); *Ficus carica*; *Haplopappus* sp & *H. spinulosus*; *Heterotheca* sp.; *Hydrangea arborescens*; *Ipomoea* sp.; *Jatropha cardiophylla*; *Koelreuteria paniculata*; *Lycium* sp.; *Malpighia* sp.; *Mimosa biuncifera* & *M. laxiflora*; *Monarda* sp.; *Pinus* sp. & *P. cembroides* & *P. nelsonii* & *P. ponderosa* (ponderosa pine); *Populus deltoides* & P. tremuloides; *Prunus persica* (peach); *Prunus* sp. *Pyrus* sp.(pear); *Quercus* sp.(oak); *Rincinus communis*; *Rosa* sp.; *Scirpus californicus*; *Solanum* sp. & *S. elaegnifolium*; *Sphaeralcea orcuttii*; *Vixa orellana*; *Vitis* sp. (grape).

Oligonychus vitis: *Eucalyptus* sp.; *Heteropyxis natalensis*; *Pyracnatha* sp.; *Vitis vinifera* (grape).

Oligonychus yothersi: *Ampelopsis* sp.; *Anacardium occidentale*; *Annona cherimolav* (cherimoya); *Arenga engleri*; *Averrhoa carambola*; *Bixa orellana*; *Buxus* sp.; *Calliandra* sp. (powderpuff); *Camellia* sp & *C. sinensis* (tea); *Crica papaya*; *Castanea sativa*; *Chrysalidocarpus lutescens*; *Chrysophyllum cainito*; *Cinnamomum camphora*; *Clidemia* sp.; *Coffea* sp. & *C. arabica* (Arabian coffee); *Copaifera lansdorfii*; *Cotoneaster micorphylla*; *Cydonia oblonga* (quince); *Elaeagnus parvifolia*; *Eriobotrya japonica* (loquat); *Erythrina* sp. & *E. edulis*; *Eucalyptus* sp; *Eugenia* sp. & *E. insipida*; *Euphorbia longana*; *Ficus elastica*; *Fuschsia* sp.; *Grevillea robusta* (silky oak); *Guarea francavillana*; *Ipomeoa* sp.; *Lagerstroemia speciosa*; *Litchi chinensis* (litchi); *Malus* sp. & *M. pumila* (apple); *Mangifera indica* (mango); *Manihot esculentia*; *Musa sapientum*; *Persea americana* (avocado); *Platanus* sp.; *Populus tremuloides* (poplar); *Prunus persica* (peach); *Psidium guajava* (guava); *Punica granatum* (pomegranate); *Pyracantha* sp.; *Pyrus communis* (pear); *Rhododendron* sp.; *Ricinus communis*; *Rosa* sp.; *Salix* sp. & *S. alba* & *S. chilensis* (willow); *Terminalia catappa*; *Theobroma cacao*; *Tibouchina lepidopta*; *Vitis* sp. (grape); *Xylopia fragans*.

Panonychus ulmi: *Acacia longifolia*, *Aesculus hippocastanum*; *Alnus* sp.; *Amaranthus* sp.; *Amelanchier* sp.; *Artocarpus heterophyllus*; *Atropa belladonna*; *Avena sativa* (oat); *Betula* sp. (birch); *Calystegia sepium*; *Camellia sinensis* (tea); *Castanea sativa* (sweet chestnut); *Chenopodium* sp.; *Citrus* sp. & *C. aurantiifolia* & *C. aurantium* & *C. grandis*; *Convolvulus arvensis*; *Corylus avellana*; *Cotoneaster tomentosus*; *Crataegus* sp.; *Cucumis* sp.; *Cucurbita maxima* & *C. pepo*; *Cydonia oblonga* (quince); *Dalbergia sissoo*; *Daucus carota* (carrot); *Desmodium canescens*; *Diospyros* sp. (persimmon); *Eriobotrya japonica* (loquat); *Fagus sylvatica*; *Ficus carica*; *Fragaria* sp.(strawberry) & *F. vesca* (alpine strawberry, woodland strawberry); *Frangula alnus*; *Fraxinus* sp.; *Gardenia jasminioides*; *Hibiscus* sp.; *Hydrangea macrophylla* (hydrangea); *Juglans regia* (walnut); *Juncus maritimus*; *Laburnum alpinum*; *Lonicera japonica* (honeysuckle); *Malus* sp.; *Malva* sp.; *Medicago sativa* (lucerne, alfalfa); *Morus* sp.; *Myrica pensylvanica*; *Petroselinum crispum*; *Phaseolus* sp.; *Phlox* sp.*; Polygonum aviculare*; *Populus* sp. (poplar); *Potentilla fruticosa*; *Prunus* sp.; *Pyracantha* sp.; *Pyrus* sp.; *Quercus* sp. (oak); *Rhamnus* sp.; *Ribes* sp.; *Robinia pseudoacacia*; *Rosa* sp.; *Rubus* sp.; *Rumex obtusifolius; Salix alba* & *S. caprea*; *Sapindus saponaria*; *Sasa kurilensis*; *Sphora japonica*; *Sorbus aria* & *S. aucuparia* & *S. chrysophylla* & *S. conradina* & *S. fennica* & *S. hostii* & *S. scandica*; *Sorghum halepense* (sorghum); *Symphoricarpos foetidus*; *Syzygium* sp.; *Tilia cordata*; *Trifolium* sp. (clover); *Triticum aestivum* (wheat); *Ulmus* sp.; *Vicia sativa*; *Vitis* sp. (grape); *Wisteria sinensis*; *Zea mays* (maize).

Tetranychus desertorum: *Gossypium* (cotton), *Manihot esculenta* (cassava), *Vitis* sp. (grape); status on *Phaseolus vulgaris* (common bean) and *Vigna unguiculata* (cowpea) unknown.

Distribution:

Brevipalpus chilensis: Argentina; Chile.

Eotetranychus lewisi: Bolivia; Chile; Colombia; Costa Rica; El Salvador; Guatemala; Hawaii; Honduras; Libya; Madeira Island; Mexico; Nicaragua; Panama; Peru; South Africa; USA.

Oligonychus vitis: North Africa (Egypt to Algeria); Chile; India; South Africa.

Oligonychus yothersi: Argentina; Brazil; Chile; China; Colombia; Costa Rica; Cuba; Ecuador; Hawaii; Mexico; Nicaragua; Paraguay; Peru; USA.

Panonychus ulmi: Afghanistan; Algeria; Argentina; Australia (considered absent from Western Australia); Austria; Belgium; Bermuda; Brazil; Bulgaria; Canada; Chile; China; Costa Rica; Czechoslovakia; Denmark; Egypt; Finland; France; Germany; Greece; Hungary; India; Iran; Ireland; Israel; Italy; Japan; Korea; Lebanon; Libya; Lithuania; Madeira Island; Morocco; The Netherlands; New Zealand; Norway; Poland; Portugal; Rumania; South Africa; Spain; Sweden; Switzerland; Syria; Taiwan; Tunisia; Turkey; United Kingdom; United States of America; Uruguay; Venezuela; Vietnam; Yugoslavia.

Tetranychus desertorum: Argentina, Bolivia, Brazil, Chile, Costa Rica, Japan, Mexico, Paraguay, Senegal, Venezuela.

Interceptions:

B. chilensis was detected in association with *Vitis* sp. imported from Chile into the USA 119 times during 1994-2002 (SAG/USDA, 2002). This pest was also detected in association with *Actinidia chinensis* (x26), *Actinidia* spp. (x2) and *Citrus limon* (x6) from Chile during this period. However, it was not been detected in association with table grapes imported from Chile to New Zealand in approximately 70 consignments during 3 seasons of trade (MAF, 2002). Mites (live and dead) are commonly intercepted on plant commodities imported into Australia, for example, cherries from the USA.

Biology:

B. chilensis is recognised as a significant pest of table grapes in Chile and is known to be associated with this commodity. Due to the recognised importance of this pest it was used as the basis for the data sheet, risk assessment and development of proposed risk management measures.

Specific quarantine measures are required for *B. chilensis* for the importation of table grapes from Chile into the USA (methyl bromide fumigation, CFR 319.56-2m), New Zealand (inspection using a maggi lamp, MAF Biosecurity Authority (Plants) Standard 152.02) and Peru (inspection and methyl bromide fumigation, Departmental Resolution No. 076-2003-AG-SENASA-DGSV).

B. chilensis is a small, reddish mite about 1 mm long. Females lay eggs on the underside of leaves and produce up to 140 eggs. Populations of 900-1400 adults per leaf are reported for Chile. This species initially feeds and causes damage to *Vitis* buds and can then be found distributed through the bunch and on the underside of the leaves. (Gonzalez, 1983).

B. chilensis assumed pest status in Chile in the 1950s following the widespread application of organophosphorus insecticides. Losses in vineyards of up to 30% have been reported. This species primarily affects the buds and leaves of *Vitis* (its main host in Chile) and is associated with the vegetative and flowering/fruiting structures of a range of horticultural, forestry, ornamental and weed hosts (e.g. those in vineyards). (Gonzalez, 1983).

B. chilensis is considered to be a more common pest of *Vitis* in Chile than other species of mite such *Oligonychus vitis*, *Tetranychus urticae* and *Panonychus ulmi*. *Oligonychus vitis* assumed pest status in Chile in 1969 following a serious drought during 1968. It was associated with defoliation of several varieties. Damage due to this species in its native North Africa is also associated with dry climates. (Gonzalez, 1983).

The report of Gonzalez (1983) indicates that, to varying degrees, *B. chilensis, Oligonychus vitis*, *Tetranychus urticae* and *Panonychus ulmi* are all pests of *Vitis* in Chile. In recent comments from SAG (2002) it was noted that: *Eotetranychus lewisi* was occasionally detected in table grape foliage but has not been detected in grape bunches; *Oligonychus vitis* was considered to be a pest of mature leaves post harvest and not a pest of bunches; and *Panonychus ulmi* was normally a pest of pome fruit and was not associated with table grapes in Chile. Further clarification of the association of these mite species with table grapes may be possible once inspection records for this commodity are available.

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GROUP 2A – APHIDS

Aphis fabae Scopoli [Hemiptera: Aphididae] (Black bean aphid)

Aphis illinoisensis Shimer [Hemiptera: Aphididae] (Grapevine aphid)

Synonyms and changes in combination:

Aphis fabae: *Anuraphis cynariella* Theobald; *Aphis abientaria* Walker; *A. addita* Walker; *A. adducta* Walker; *A. advena* Walker; *A. aparines* Fabricius; *A. aparinis* E. Blanchard; *A. apii* Theobald; *A. apocyni* Koch; *A. atriplicis* nec Linnaeus; *A. brevisiphona* Theobald; *A. carpathica* Tshumak; *A. chaerophylli* Koch; *A. citricola* van der Goot; *A. dahliae* Mosley; *A. erecta* del Guercio; *A. fabae* E. Blanchar; *A. fumariae* Blanchard; *A. hortensis* Fabricius; *A. indistincta* Walker; *A. inducta* Walker; *A. insularis* Blanchard; *A. ligustici* Fabricius; *A. neri* nec Boyer de Fonscolombe; *A. papaveris* auct.; *A. phlomoidea* del Guercio; *A. polyanthis* Passerini; *A. rumicis* Linnaeus; *A. silybi* Passerini; *A. thlaspeos* Schrank; *A. translata* Walker; *A. tu*berosae Boyer de Fonscolombe; *A. valerianina* del Guercio; *A. watsoni* Theobald; *Doralis fabae* Scopoli; *Myzus roseum* Macchiati; *M. rubra* Macchiati; *M. rubrum* del Guercio.

Aphis illinoisensis: *Aphis ampelophila* Del Guercio; *A. viticola* (Thomas); *Macrosiphum illinoisensis* (Shimer); *M. viticola* Thomas; *Siphonophora viticola* Thomas,

Hosts:

Aphis fabae: The primary host is usually *Euonymus europaeus* but *A. fabae* is highly polyphagous on secondary hosts, which include many crop plants: *Allium* spp., *Amaranthus retroflexus* (carelessweed), *Apium graveolens* (celery), *Arctium lappa* (burdock), *Berberis vulgaris* (European barberry), *Beta* spp. & *B. vulgaris* (beetroot), *Brassica* spp., *Cajanus cajan* (pigeon pea), *Capsicum* spp. & *C. annuum* (capsicum), *Carduus* spp., *Chenopodium album* (fat hen), *Cirsium* spp., *Citrus* deliciosa (mediterranean mandarin) & *C. sinensis* (orange), *Crataegus phaenopyrum*, Cucumis melo (melon) & *C. sativus* (cucumber), *Cucurbita maxima* (banana squash), *Cynara scolymus* (artichoke), *Euonymus europaeus* & *E. japonicus*, *Glycine max* (soyabean), *Gossypium* spp., *Helianthus annuus* (sunflower), *Helichrysum* spp., *Hosta* spp., *Lactuca sativa* (lettuce), *Lonicera* spp., *Lupinus* spp. & *L. luteus* (yellow lupin), *Lycopersicon esculentum* (tomato), *Momordica* spp., *Oxytropis albiflorus*, *Papaver somniferum* (Opium poppy), *Pastinaca sativa* (parsnip), *Phaseolus coccineus* (runner bean) & *P. vulgaris* (common bean), *Philadelphus coronarius* (mock orange), *Pisum sativum* (pea), *Rheum officinale* (Chinese rhubarb), *Rosa* spp., *Sambucus* spp., *Sinapis alba* (white mustard), *Solanum nigrum* (black nightshade) & *S. tuberosum* (potato), *Urtica* spp., *Viburnum* spp. & *V. opulus* (Guelder rose), *Vigna unguiculata* (cowpea), *Vicia* spp. & *V. faba* (broad bean), *Vitis vinifera* (grapevine).

Aphis illinoisensis: *Carica papaya* (pawpaw); *Cissus sicyoides*; *Cucumis sativus* (cucumber); *Mangifera indica* (mango); *Viburnum* sp. (black haw); *Vitis tiliaefolia*; *Vitis vinifera* (grape).

Distribution:

Aphis fabae: *A. fabae* and its subspecies are widespread in temperate regions of the Northern Hemisphere. It is predominantly a crop pest in temperate and Mediterranean climates but also occurs in the Middle East, India and in some countries in South America and Africa. It is uncommon in most tropical regions and is presently absent from Australasia. Records of *A. rumicis* on hosts other than *Rumex*, from earlier in the 20th Century are assumed to be *A. fabae* in

distribution maps. Afghanistan, Argentina, Austria, Belgium, Bermuda, Brazil, Bulgaria, Burundi, Cameroon, Canada, Chile, China, Congo, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Ethiopia, Finland, Former Yugoslavia, France, Georgia (Republic), Greece, Hungary, India, Iran, Iraq, Ireland, Israel, Italy, Japan, Jordan, Kenya, Korea, Republic of, Latvia, Lebanon, Libya, Malawi, Malta, Mexico, Morocco, Nepal, Netherlands, Niger, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Puerto Rico, Romania, Russian Federation, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, Tanzania, Turkey, Uganda, Ukraine, United Kingdom, Uruguay, USA, Zimbabwe. (CABI, 2002).

Aphis illinoisensis: Brazil; Chile; Costa Rica; El Salvador; South America; USA; Uruguay; Venezuela.

Interceptions:

This group of pests (Aphididae) was not been detected in association with table grapes imported from Chile to New Zealand in approximately 70 consignments during 3 seasons of trade (MAF, 2002) nor in association with table grapes from California destined for Australia during the first season of trade for this commodity (APHIS/AQIS, 2003).

Biology:

Aphids are considered a secondary or accidental pests of *Vitis* spp. in Chile but can cause significant damage to certain varieties in some seasons. They are reported as attacking leaves, tendrils and bunches. In-field control measures are not standard due to the infrequent occurrence of infestations. (Gonzalez, 1983)

SAG (2002) commented that: *Aphis fabae* was a secondary polyphagous pest, present in Chile but not a pest of grapevines; and *Aphis illinoisensis* was reported in grapevine buds and tendrils but not fruit and was an uncommon species. Further clarification of the association of these aphid species with table grapes may be possible once inspection records for this commodity are available.

Aphis fabae is recorded as a vector for more than 30 plant pathogenic viruses (Blackman and Eastop, 1985). It is dark brownish to matt black and adults are often bigger than other *Aphis* spp. Specimens are variably striped and may have dorsal white wax markings. Apterae specimens are 1.5-3.1 mm and alatae specimens are 1.3-2.6 mm. One female may produce up to 100 young, at a rate of 10 per day. (CABI, 2002). *Aphis illinoisensis* is small (adults approximately 2mm), rather shiny and deep reddish-brown to almost black (CABI, 2002; Gonzalez, 1983).

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GROUP 2B – MEALY BUGS & SCALES

Icerya palmeri Riley-How [Hemiptera: Margarodidae] (Margarodes scale)

Parthenolecanium corni (Bouché) [Hemiptera: Coccidae] (European fruit lecanium scale)

Pseudococcus calceolariae (Maskell) [Hemiptera: Pseudococcidae] (Citrophilus mealybug)

Pseudococcus maritimus (Ehrhorn) [Hemiptera: Pseudococcidae] (Grape mealybug)

Synonyms and changes in combination (where applicable):

Parthenolecanium corni: *Coccus rosarum* Snellen van Volenhoven, *C. tiliae* Fitch, *Eulecanium corni corni* (Bouché); Schmutterer, *E. fraxini* King, *E. guignardi* King, *E. kansasense* (Hunter) King, *E. rosae* King, *E. vini* (Bouché) Cockerell, *Lecanium* (*Eulecanium*) *armeniacum* Craw; Cockerell & Parrott, *L. (E.) assimile* Newstead; Reh, *L. (E.) aurantiacum* Hunter, *L. (E.) canadense* Cockerell; Cockerell & Parrott, *L. (E.) caryarum* Cockerell, *L. (E.) corylifex* Fitch; Cockerell, *L. (E.) crawii* Ehrhorn; Cockerell & Parrott, *L. (E.) cynosbati* Fitch; Cockerell & Parrott, L. *(E.) fitchii* Signoret; Cockerell & Parrott, *L. (E.) kingii* Cockerell, *L. (E.) lintneri* Cockerell & Bennett; Cockerell, L. *(E.) maclurarum* Cockerell, *L. (E.) ribis* Fitch; Cockerell & Parrott, *L. (E.) rugosum* Signoret; Cockerell, *L. (E.) tarsale* Signoret; Cockerell & Parrott, *L. (E.) vini* Bouché; King & Reh, *L. adenostomae* Kuwana, *L. armeniacum* Craw, *L. assimile* Newstead, *L. canadense* Cockerell; Cockerell, *L. caryae canadense* Cockerell, *L. corni* Bouché, *L. corni robiniarum* Marchal, *L. coryli* (Linnaeus); Sulc (misidentification), *L. corylifex* Fitch, *L. crawii* Ehrhorn, *L. cynosbati* Fitch, *L. fitchii* Signoret, *L. folsomi* King, *L. juglandifex* Fitch, *L. kansasense* Hunter, *L. lintneri* Cockerell & Bennett in Cockerell, *L. maclurae* Hunter, *L. obtusum* Thro, *L. persicae crud*um Green, *L. pruinosum armeniacum* Craw, *L. rehi* King in King & Reh, *L. ribis* Fitch, *L. robiniarum* Douglas, *L. rugosum* Signoret, *L. tarsalis* Signoret, *L. vini* Bouché, *L. websteri* King, *L. wistariae* Signoret, *Parthenolecanium corni* (Bouché); Borchsenius, *P. coryli* (Linnaeus); Sulc (misidentification).

Pseudococcus calceolariae: *Dactylopius calceolariae* Maskell, *Erium cal*ceolariae (Maskell) Lindinger, *Pseudococcus citrophilus* Clausen, *P. fragilis* Brain, *P. gahani* Green.

Pseudococcus maritimus: *Dactylopius maritimus*, *Planococcus maritimus*, *Pseudococcus bakeri*, *P. capensis*, *P. latipes*, *P. omniverae*.

Hosts:

Icerya palmeri: *Vitis vinifera* (grapevine).

Parthenolecanium corni: *P. corni* is highly polyphagous, attacking some 350 plant species placed in 40 families. It attacks a wide range of crops, mostly woody fruit trees and ornamentals. Primary hosts are: *Crataegus* (hawthorns), *Malus* (ornamental species apple), *Prunus* spp. & *P. domestica* (damson) & *P. persica* (peach), *Ribes* spp. & *R. nigrum* (blackcurrant) & *R. rubrum* (red currant), *Rosa* (roses), *Vitis vinifera* (grapevine).

Pseudococcus calceolariae: *P. calceolariae* is a highly polyphagous species that has been recorded from hosts in 40 plant families. Primary hosts are: *Abutilon* (Indian mallow), *Arachis hypogaea* (groundnut), *Brachychiton*, *Brassica*, *Ceanothus*, *Chenopodium* (Goosefoot), *Citrus medica* (citron), *Conium maculatum* (Poison hemlock), *Crataegus* (hawthorns), *Cydonia oblonga* (quince), *Daucus carota* (carrot), *Dodonaea viscosa* (switch sorrel), *Eugenia*, *Ficus*, *Fragaria*, *Geranium*

(cranesbill), *Hedera helix* (ivy), *Helianthus*, *Heliotropium arborescens* (Cherry-pie), *Hibiscus* (rosemallows), *Juglans regia* (walnut), *Laburnum anagyroides* (laburnum), *Ligustrum*, *Lolium* (ryegrass), *Malus pumila* (apple) & *M. sylvestris* (crab-apple tree), *Malva* (mallow), *Musa paradisiaca* (plantain), *Nerium oleander* (oleander), *Palmae* (plants of the palm family), *Pelargonium* (pelargoniums), *Pinus radiata* (radiata pine), *Pisum sativum* (pea), *Pittosporum tobira* (Japanese pittosporum) & *P. undulatum* (Australian boxwood), *Polyscias*, *Prunus*, *Pyrus communis* (European pear), *Rheum hybridum* (rhubarb), *Rhododendron* (Azalea), *Ribes sanguineum* (Flowering currant), *Rosa* (roses), *Rubus* (blackberry, raspberry), *Schinus molle* (California peppertree), *Sechium edule*, *Solanum tuberosum* (potato), *Theobroma cacao* (cocoa), *Vitis vinifera* (grapevine).

Pseudococcus maritimus: *Annona cherimolav* (cherimoya); *Cydonia oblonga* (quince); *Hippeastrum*; *Howeia forsteriana*; *Juglans regia* (walnut); *Malus domestica* (apple); *Prunus armeniaca* (apricot) & *P. domestica* (plum) & *P. persica* (peach), *Pyrus communis* (pear); *Solanum tuberosum* (potato); *Vitis vinifera* (grapevine).

Distribution:

Icerya palmeri: Chile.

Parthenolecanium corni: Afghanistan, Albania, Algeria, Argentina, Armenia, Australia (considered to be absent in Western Australia), Austria, Azerbaijan, Belgium, Brazil, Bulgaria Canada (rd), Chile, China, Czech Republic, Czechoslovakia (former -), Denmark, Egypt, Finland, Former Yugoslavia, France, Georgia (Republic), Germany, Greece, Hungary, India, Iran, Italy, Japan, Kazakhstan, Korea (North), Korea (South), Kyrgyzstan, Latvia, Lebanon, Libya, Lithuania, Luxembourg, Malta, Mexico, Moldova, Mongolia, Netherlands, New Zealand, Norway, Pakistan, Peru, Poland, Portugal, Romania, Russian Federation (rd), Spain, Sweden, Switzerland, Syria, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom, USA, Uzbekistan, Yugoslavia.

Pseudococcus calceolariae: Australia (considered absent from Western Australia), Chile, China, Czechoslovakia (former), France, Georgia (Republic), Ghana, Italy, Madagascar, Mexico, Morocco, Namibia, Netherlands, New Zealand, Portugal, South Africa, Spain, Ukraine, United Kingdom, USA.

Pseudococcus maritimus: Argentina; Azerbaijan; Brazil; Canary Islands; Chile; Egypt; Georgia; Gibraltar; Guatemala; Hawaii; Hungary; Iran; Mexico; New Zealand; Poland; Peru; South Africa; Sri Lanka; UK; USA. Reports of this species in Australia are based on misidentifications of *P. affinis*, *P. caleolariae* and *P. longispinus* (Williams, 1985).

Interceptions:

This group of pests has been detected (mealy bugs – Pseudococcidae; scales – Diaspididae, *Saisseta* sp.) in association with table grapes imported from Chile to New Zealand in approximately 70 consignments during 3 seasons of trade (MAF, 2002). *Pseudococcus maritimus* was detected in association with table grapes from California destined for Australia during the first season of trade for this commodity (APHIS/AQIS, 2003).

Biology:

Natural enemies normally maintain populations of *Parthenolecanium corni* below economic thresholds in the USA but damaging populations can occur especially when natural enemies are affected by pesticide application. Host plants can be directly and indirectly affected by infestations. The honeydew that is excreted provides a substrate for the growth of black sooty moulds that can

reduce photosynthesis (causing premature leaf drop) and reduce the commercial quality of the produce. (CABI, 2002).

In general, damage to table grapes caused by mealy bugs is due to the pests contaminating clusters with cottony egg sacs, larvae, adults, and honeydew. As described above for *P. corni*, the honeydew can be covered with a black sooty mould. In addition, species such as *Pseudococcus maritimus* can transmit grape viruses (UC, 2003). *Pseudococcus calceolariae* is regarded as a major pest in the Riverland region of South Australia and an occasional or minor pest in Victoria and New South Wales (Gullan, 2000).

Icerya palmeri is reported in association with *Vitis* spp. in Chile (Prado, 1991) but further information on the biology of this species is not known. Females in this family (Margarodidae) have distinctly segmented bodies usually covered in a waxy secretion. Adult males are winged. Specimens can be mistaken for mealy bugs (Hill, 1975).

The lifecyle of *Pseudococcus maritimus* is similar to that for most mealy bugs: egg, 1st-4th instars, 5th instar (male) and adult. The adult male is approximately 1mm long, a weak flyer and only lives for a few days during which mating takes place. The adult female is approximately 4mm long, wingless and quite sedentary. Reproduction is sexual with females reported to produce an average of 110 eggs. (Grimes and Cone, 1985). This species is considered to spread slowly in the USA but once it is present in an orchard the infestation is difficult to clean up (TFREC, 2003). In California, feeding and subsequent damage is mainly on leaves and adult females migrate to the trunk for oviposition. In this location it is mainly considered as a pest of grape, pear and apricot (ScaleNet, 2003).

Pseudococcus calceolariae is oval shaped and up to 4mm long and adult females are covered in white secretion (Willams, 1985). Reproduction is sexual and there are 3-4 generations per year on citrus in Australia (Victoria and New South Wales) (ScaleNet, 2003).

Parthenolecanium corni is widely distributed in temperate and subtropical regions and can be a serious pest of deciduous orchards, vines and ornamentals (Ben-Dov, 1993). This species reproduces sexually and parthenogenetically, has 1-3 generations a year and on apples females are reported as laying 502-4025 eggs each. It disperses as the first-instar crawler by wind, animal vectors and movement of infested material by humans. Life stages are mostly sedentary apart from the winged male. Crawlers settle and feed on the underside of leaves and later stages often migrate to stems and branches. Adult females are convex or hemispherical and up to 6mm long and 5mm wide. The shape, size and colour is extremely variable and depends on maturity, host and what part of the plant it has infested. (CABI, 2002).

Eight species of *Pseudococcus* and two species of *Parthenolecanium* (APPD, 2003) are reported in Australia, demonstrating the suitability of the climatic conditions for their survival.

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GROUP 3 – LEPIDOPTERANS

Accuminulia buscki Brown [Lepidoptera: Tortricidae] (Tortricid leafroller)

Accuminulia longiphallus Brown [Lepidoptera: Tortricidae] (Tortricid leafroller)

Chileulia stalactitis (Meyrick) [Lepidoptera: Tortricidae] (Grape berry moth)

Peridroma saucia (Hübner) [Lepidoptera: Noctuidae] (Variegated cutworm)

Proeulia apospata Obraztsov [Lepidoptera: Tortricidae] (Fruit tree leaf roller)

Proeulia auraria (Clarke) [Lepidoptera: Tortricidae] (Chilean fruit tree leaf folder)

Proeulia chrysopteris (Butler) [Lepidoptera: Tortricidae] (Fruit leaf folder)

Proeulia triquetra Obraztsov [Lepidoptera: Tortricidae] (Grape leaf roller, fruit tree leaf roller)

Synonyms and changes in combination (where applicable):

Chileulia stalactitis: : *Eulia stalactitis* Meyrick

Peridroma saucia: *Agrotis angulifera* Wallengren, *A. impacta* Walker, *A. inermis* Harris, *A. intecta* Walker, *A. ortonii* Packard, *A. saucia* (Hübner) *Lycophotia margaritosa* (Haworth), *L. ochronota* Hampson, *L. saucia* (Hübner), *Noctua aequa* Hübner, *N. majuscula* Haworth, *N. margaritosa* Haworth, *N. saucia* Hübner, *Rhyacia margaritosa* (Haworth), *R. saucia* (Hübner), *Peridroma margaritosa* (Haworth).

Proeulia apospata: *Eulia auraria* Clarke (part)

Proeulia auraria: *Eulia auraria* Clarke

Proeulia chrysopteris: *Eulia chrysopteris* Meyrick, *Tortrix chrysopteris* Butler.

Hosts:

Accuminulia buscki: *Prunus armeniaca* (apricot) & *P. domestica* (plum) & *P. persica* (peach); *Vitis* spp. (grapevine).

Accuminulia longiphallus: details unknown.

Chileulia stalactitis: *Austrocedrus chilensis*; *Citrus paradisi* (grapefruit) & *C. sinensis* (orange); *Prosopis tamarungo* (mesquite); *Prunus armeniaca* (apricot) & *P. cerasus* (cherry) & *P. domestica* (plum) & *P. salicina* (Japanese plum); *Vitis vinifera* (grape).

Peridroma saucia: *P. saucia* has been recorded on a wide range of more than 130 angiosperms, preferring primarily herbaceous dicotyledonous plants, then woody shrubs and low-growing fruit trees, and thirdly monocotyledonous plants, mainly grasses. Primary hosts are: *Beta vulgaris* (beetroot), *Brassica oleracea* (cabbage, cauliflower) & *B. oleracea* var. capitata (cabbage), *Capsicum annuum* (capsicum), *Cynara scolymus* (artichoke), *Lactuca sativa* (lettuce), *Lycopersicon esculentum* (tomato), *Medicago sativa* (lucerne), *Nicotiana tabacum* (tobacco), *Solanum tuberosum* (potato). *Vitis vinifera* (grapevine) is considered a secondary host.

Proeulia apospata: *Vitis vinifera* (grapevine)

Proeulia auraria: This species is a general feeder on deciduous as well as on evergreen wild host plants and crops. It was first found on a native shrub, *Aristolochia chilensis* (Aristolochiaceae) and then on a variety of endemic trees belonging to the families *Myrtaceae* and *Rosaceae*, among others. Exotic host trees include ornamentals such as the sycamore (*Platanus orientalis*) and false acacia (*Robinia pseudoacacia*), Horticultural hosts include: *Actinidia deliciosa* (kiwi), *Citrus sinensis* (navel orange), *Malus pumila* (apple), *Prunus armeniaca* (apricot) & *P. avium* (cherry) & *P. domestica* (damson) & *P. persica* (peach), *Pyrus communis* (European pear), *Vitis vinifera* (grapevine).

Proeulia chrysopteris: From the wide array of native host plants in over 16 families of higher plants, this species has been slowly moving to economic crops, particularly fruit trees in the families Rosaceae, Vitaceae and Rutaceae (citrus group). e.g. *Acer pseudoplatanus* (great maple), *Actinidia deliciosa* (kiwi fruit), *Citrus sinensis* (navel orange), *Diospyros* (malabar ebony), *Malus pumila* (apple), *Mespilus germanica* (medlar), *Platanus orientalis* (plane), *Prunus armeniaca* (apricot) & *P. domestica* (damson) & *P. persica* (peach), *Pyrus communis* (European pear), *Simmondsia chinensis*, *Vitis vinifera* (grapevine).

Proeulia triquetra: *Vitis vinifera* (grapevine)

Distribution:

Accuminulia buscki: Chile.

Accuminulia longiphallus: Chile.

Chileulia stalactitis: Chile.

Peridroma saucia: Originally *P. saucia* was probably a Neotropical species with a range extending north to the southern USA. It has been recorded in almost every country in Europe. Armenia, China, Israel, Japan, Sri Lanka, Syria, Turkey, Albania, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Faroe Islands, Finland, Former Yugoslavia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Spain, Sweden, Switzerland, United Kingdom, Morocco, Tunisia, Bermuda, Canada, Mexico, USA, Costa Rica, Guatemala, Jamaica, Puerto Rico, Argentina, Brazil, Chile, Colombia, Peru, Uruguay, Venezuela.

Proeulia apospata: Chile.

Proeulia auraria: Chile (restricted distribution).

Proeulia chrysopteris: Chile (restricted distribution).

Proeulia triquetra: Chile.

Interceptions:

This group of pests (Lepidoptera) was not been detected in association with table grapes imported from Chile to New Zealand in approximately 70 consignments during 3 seasons of trade (MAF, 2002). Adult and juvenile (pupa) forms (including Geometridae, Noctuidae, Pyralidae and Torticidae) were detected in association with table grapes from California destined for Australia during the first season of trade for this commodity (APHIS/AQIS, 2003).

A Lepidopteran, later identified as *Accuminulia buscki,* was intercepted in the USA in a consignment of Chilean table grapes in 1926 (Brown, 1999). Nearly all interceptions of

Lepidoptera in the USA are larvae but as the larvae of *Accuminulia* are unknown it is not possible to determine if this genus is among these interceptions (Brown, 1999).

Biology:

Most larval Tortricinae are leaf rollers but a few genera are known to bore into the fruit of host plants (Brown, 1999). These genera include *Proeulia*, *Chileulia* and *Accuminulia*. This contrasts with the report of Pucat (1994) who noted that larvae of *Proeulia* are external feeders that leave the host plant before harvest. Brown and Passoa (1998) describe the larvae of *Proeulia* as polyphagous leaf rollers that are also known to feed on the surface of fruit.

Proeulia auraria & *P. triqueta* are known to destroy buds, berries and vegetative material of *Vitis* in Chile and their presence is characterized by the presence of rolled up leaves. Damage to the berries can vary from superficial to completely destroyed. *Proeulia auraria* was initially considered a pest of citrus but has grown in importance as a pest of *Vitis*. *Proeulia auraria* is the most common species of this genus in Chile and the other species are considered to be of less significance. This genus is considered to be of quarantine concern for table grapes exported from Chile to the USA. (Gonzalez, 1983).

The genus *Proeulia* is capable of flight with some species known to fly throughout the year. For example, *Proeulia auraria* is an abundant native insect in Chile and flies virtually throughout the year with peaks during January and April and September-November. (Gonzalez, 1983). *Proeulia* overwinters on deciduous hosts as first instar larvae protected in webs but develops throughout winter on evergreen hosts. Eggs masses are laid on leaves. Leaves and flower debris are often attached to damaged fruit and severely affected young fruit can dry and fall off. (Pucat, 1994).

The genus *Accuminulia* has been recently described (Brown, 1999) and is considered to be a potential future pest problem for Chile (Gonzalez, 2000). *Accuminulia buscki* is considered to be a native species of Chile that has expanded its host range to include agricultural crops (Brown, 1999). The biology of *A. longiphallus* is not known (Brown, 1999).

Peridroma saucia is the only migratory species within the *Peridroma* genus and adults migrate regularly into most of Europe and into the northern USA and southern Canada (CABI, 2002). Feeding of cutworms such as *P. saucia* occurs from bud swell to when shoots are several inches long. Injured buds may fail to develop shoots/clusters and result in yield loss (USDA, 2002). In California this species does not migrate to the soil but moves underneath the bark (USDA, 2002).

Chileulia stalactitis feeds on foliage, mature fruit and developing fruit. It is considered a secondary pest of *Vitis* in Chile but is capable of causing significant damage. Damage caused to *Prunus* by this species is considered to be more significant that that caused by species of *Proeulia*. This species overwinters as larvae inside hollow fruit or dried up bunches. In spring it feeds on leaves and in summer on leaves and flowers. Adults begin to emerge at the beginning of winter and can frequently be seen flying during August. Eggs are laid on leaves. (Gonzalez, 1983).

SAG (2002) commented that *Accuminulia* spp., *Chileulia stalactitis* and *Proeulia* could all be easily detected during phytosanitary inspection. This may be possible for specimens present externally in/on the bunch but it is also possible that larvae may be inside fruit.

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GROUP 4 – THRIPS

Drepanothrips reuteri Uzel [Thysanoptera: Thripidae] (Grape thrips)

Frankliniella australis Morgan [Thysanoptera: Thripidae] (Chilean flower thrips)

Frankliniella occidentalis (Pergande) [Thysanoptera: Thripidae] (Western flower thrips)

Synonyms and changes in combination:

Drepanothrips reuteri: *Drepanothrips viticola* Mokvzechi

Frankliniella australis: *Frankliniella cestrum* Moulton; *Frankliniella argentinae* Moulton

Frankliniella occidentalis: *Frankliniella californica* (Moulton); *Frankliniella helianthi* (Moulton); *Frankliniella moultoni* Hood; *Frankliniella trehernei* Morgan

Hosts: Thrips are generally polyphagous pests, for example, there are 244 plant species from 62 families recorded as hosts for *F. occidentalis* (CABI/EPPO, 1997). Commercial hosts in the USA include *Allium*, *Citrus*, Cucurbitaceae, *Gladiolus*, *Lycopersicon esculentum* (tomato), *Phaseolus, Prunus* and *Rosa*. *Drepanothrips reuteri* is only reported in association with *Vitis* (CABI, 2002).

Distribution:

Drepanothrips reuteri: Chile, former USSR, France, Italy, Switzerland, Turkey, USA (California).

Frankliniella australis: Argentina, Bolivia; Chile.

Frankliniella occidentalis: Indigenous to North America (Canada, Mexico, continental USA). Began to spread internationally in about 1980 and has now been reported from countries in all continents of the world. (CABI/EPPO, 1997). Albania (restricted distribution, rd), Argentina, Australia (rd), Austria, Belgium, Brazil, Bulgaria (rd), Canada (rd), Chile, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic (rd), Denmark (rd), Dominican Republic, Ecuador, Estonia (rd), Finland, France (rd), Germany (rd), Greece (rd), Guatemala, Guyana, Hungary, Ireland, Israel, Italy, Japan (rd), Kenya, Korea, Republic of, Kuwait, Lithuania, Macedonia, Malaysia, Malta (rd), Martinique, Mexico (rd), Netherlands, New Zealand (rd),Norway (rd), Peru, Poland (rd), Portugal (rd), Puerto Rico, Réunion, Romania, Russian Federation (rd), Slovakia, Slovenia (rd), South Africa, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Turkey (rd), United Kingdom, USA, Venezuela, Zimbabwe.

Interceptions:

This group of pests (Thysanoptera) was not been detected in association with table grapes imported from Chile to New Zealand in approximately 70 consignments during 3 seasons of trade (MAF, 2002) nor in association with table grapes from California destined for Australia during the first season of trade for this commodity (APHIS/AQIS, 2003).

Biology:

A comprehensive data sheet on *Frankliniella occidentalis* is provided in CABI/EPPO (1997).

This group of pests can directly affect plant production by reducing yield and quality or transmitting viruses, or indirectly when their mere presence on a crop can result in access to particular markets being denied (CABI, 2002). Thrips are recognised as vectors of a range of plant

viruses, for example tomato spotted wilt virus (TSWV) and tobacco streak ilavirus (TSV) by *F. occidentalis.* Only nymphs can acquire the virus and they remain infective for 3-10 days. (CABI/EPPO, 1997).

Drepanothrips reuteri has been recorded as forming a major (e.g. 70%) part of the thrips populations associated with table grapes in certain areas of Chile. This species, along with *F. cestrum* (*F. australis*), are considered to be significant pests of *Vitis* in Chile. (Gonzalez, 1983; Ripa, 1994). *Frankliniella australis* is also a recognised pest of *Prunus* with significant reductions in production of marketable fruit reported from Chile (Ripa, 1988; Ripa and Rodriguez, 1993). In contrast to these reports, SAG (2002) commented that *F. australis* is associated with flower petals during their development and is not considered to cause economic damage.

There is some debate over the exact symptoms on *Vitis* in Chile caused by various species of thrips and whether they cause symptoms on berries in addition to vegetative plant parts (Gonzalez, 1983). *Frankliniella occidentalis* and *D. reuteri* are known to cause scarring of berries in California which can make some white varieties unmarketable (UC, 2000).

Adult thrips are tiny, for example, the adult female of *F. australis* 1.6 to 1.8 mm of long (Gonzalez, 1983) and adults of *F. occidentalis* are generally less than 2mm (CABI/EPPO, 1997). Colouration of adults can vary, for example, pale, intermediate and dark forms of *F. occidentalis* occur at different times of the year in the USA (CABI/EPPO, 1997). Eggs are similarly small with *F. occidentalis* eggs being opaque, reniform and approximately 200µm long (CABI/EPPO, 1997).

The small size of thrips allows them to secrete themselves into small crevices and tightly closed plant parts. Localised spread could occur via wind, human vectors (e.g. in hair, on clothes), on equipment/containers and international spread is possible on plants for planting and cut flowers (CABI/EPPO, 1997). Specimens of *F. australis* can be found under the bark of *Vitis* and other hosts during winter (Gonzalez, 1983). SAG (2002) considers that specimens of *F. australis* can be detected during phytosanitary inspection.

Under favourable conditions, thrips such as *F. occidentalis* can reproduce continually. Up to 15 generations per year have been recorded under glasshouse conditions with females producing 20-40 eggs each (CABI, 2002).

Interstate restrictions on the movement of certain *F. occidentalis* host material exist in Australia. For example, the movement of cut flowers, leafy vegetables or nursery stock of *F. occidentalis* hosts into the State of Tasmania (DPIWE).

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GROUP 5 – WEEVILS

Geniocremnus chiliensis (Boheman) [Coleoptera: Curculionidae] (Tuberous pine weevil)

Naupactus xanthographus (Germar) [Coleoptera: Bostrichidae] (Fruit tree weevil)

Otiorhynchus sulcatus (Fabricius) [Coleoptera: Curculionidae] (Vine weevil; black vine weevil)

Synonyms and changes in combination (where applicable):

Naupactus xanthographus: *Leptocerus xanthographus* Germar; *Pantomorus xanthographus* (Germar).

Otiorhynchus sulcatus: *Brachyrhinus sulcatus* Fabricius, *Curculio sulcatus* Fabricius, *Otiorhynchus linearis* Stierlin.

Hosts:

Geniocremnus chiliensis: *Vitis vinifera* (grapevine).

Naupactus xanthographus: There are conflicting reports (marked with *, Gonzalez, 1983, Ripa, 1986) on the host range for this species but it is considered to include: *Actinidia chinensis* (kiwi fruit); *Annona cherimola* (cherimoya, custard apple); *Beta vulgaris*; *Citrus limon* (lemon); *Citrus sinensis* (orange); *Conium maculatum*; *Cydonia* (quince); *Diospyros kaki* (persimmon); *Eriobotrya japonica* (loquat); *Foeniculum vulgare* (fennel); *Juglans regia* (walnut); *Lucuma bifera**; *Malus domestica* (apple); *Medicago sativa* (alfalfa, lucerne); *Mespilus germanic*; *Olea europaea* (olive); *Persea americana* (avocado); *Phaseolus vulgaris* (bean); Plantago major; Prunus armeniaca* (apricot); *Prunus cerasus* (cherry); *Prunus domestica* (plum); *Prunus persica** (peach); *Prunus salicina** (Japanese plum); *Pyrus communis** (pear); *Raphanus sativus* (radish)*; *Rubus idaeus** (frambuesa, raspberry); *Rumex* sp.; *Solanum tuberosum* (papa, potato); *Sorgum halepense* (sorghum); *Taraxacum officinale* (dandelion); *Vitis vinifera** (grapevine).

Otiorhynchus sulcatus: *Astilbe*, *Begonia* & *B. cucullata* var. hookeri (Perpetual begonia), *Camellia* & *C. japonica* (Camellia), *Capsella bursa-pastoris* (shepherd's purse), *Chenopodium album* (fat hen), *Chrysanthemum* (daisy), *Cissus rhombifolia* (grape ivy), *Cornus florida* (Flowering cornel), *Corylus*, *Cotoneaster* & *C. bullatus*, *Cryptomeria*, *Cyclamen persicum* (cyclamens), *Erica* (heaths), *Euonymus* (spindle trees) & *E. alatus* & *E. fortunei*, *Fragaria ananassa* (strawberry) & *F. vesca* (European strawberry), *Fuchsia*, *Gaultheria shallon* (Salal), *Gerbera* (Barbeton daisy), *Hedera* (Ivy), *Humulus lupulus* (hop), *Impatiens* (balsam), *Juniperus horizontalis* (creeping juniper), *Kalanchoe*, *Kalmia latifolia* (Calico-bush), *Ligustrum vulgare* (privet), *Liquidambar styraciflua* (American red gum), *Parthenocissus tricuspidata* (Boston ivy), *Picea pungens* (blue spruce), *Pinus contorta* (lodgepole pine), *Populus* (poplars), *Primula* (Primrose) & *P.* polyantha, *Prunus laurocerasus*, *Rhododendron* (Azalea) & *R. catawbiense*, & *R. ponticum* (Pontic rhododendron) & *R. simsii* (Sim's azalea), *Rosa* (roses), *Rubus idaeus* (raspberry), *Rudbeckia laciniata* (Cutleaf coneflower), *Sansevieria trifasciata* (snake plant), *Saxifraga*, *Schefflera*, *Sedum*, *Sonchus oleraceus* (annual sowthistle), *Taraxacum officinale* (dandelion), *Taxus* & *T. baccata* (English yew) & *T. cuspidata* (Japanese yew) & *T. media*, *Thuja* & *T. occidentalis* (Eastern arborvitae) & *T. plicata* (western red cedar), *Trifolium repens* (white clover), *Tsuga canadensis* (eastern hemlock), *Vaccinium* (blueberries), *Viola* (Violet), *Vitis vinifera* (grapevine).

Distribution:

Geniocremnus chiliensis: Chile.

Naupactus xanthographus: Argentina; Brazil; Chile; Paraguay; USA; Uruguay.

Otiorhynchus sulcatus: Australia (considered absent in Western Australia), Austria, Belgium, Bulgaria, Canada, Chile, Colombia, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Malaysia, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Russian Federation, Saint Helena, Sweden, Switzerland, United Kingdom, USA, Yugoslavia (restricted distribution).

Interceptions:

Naupactus xanthographus has been detected in association with grapes and melons exported from Chile to the USA since 1953. Prior to 1975 (when mandatory fumigation of Chilean table grapes destined for the USA was introduced) it was detected 26 times with grapes and 10 times with melons. It was subsequently (until 1982) detected 6 times with grapes and pears. (Gonzalez, 1983)

Biology:

The life stage of weevils, such as *N. xanthographus* and *O. sulcatus,* considered likely to be associated with table grapes is the adult. Larvae and eggs are primarily found in soil, bark and vegetation but adults may be associated with bunches (as demonstrated by interceptions of *N. xanthographus* during phytosanitary inspections).

Phytosanitary measures are required for *N. xanthographus* for the export of table grapes from Chile to the USA and Peru (inspection and methyl bromide fumigation, Departmental Resolution No. 076-2003-AG-SENASA-DGSV).

Naupactus xanthographus was first regarded as a pest of commercial crops in Chile in the 1930's but was not recognised as a pest of *Vitis* until the 1950's. By the 1960's is was considered a serious pest of *Vitis* in Chile and also a primary pest of citrus, avocado and loquat. It is considered a secondary pest of alfalfa in Argentina. Damage due to adults is considered to be variable whereas damage due to larvae is considered to occur every year. The level of damage is proportional to the size of the population. (Gonzalez, 1983)

Adult female *N. xanthographus* are 14-18mm long and the male is smaller (12-14mm) and narrower. Eggs are oval, approximately 1mm long, yellow/orangish and are laid under the bark in several clusters of 20-50 with up to 25 locations per plant. There are 6 larval stages with first stage larvae 1.3-1.5mm long through to final stage larvae, which are up to 2cm long. Females can store male sperm within their abdomen and therefore remain capable of producing offspring in the absence of males for up to 6 months. Each female can produce up to 1000 eggs. Larvae (and pupa) are present in soil and could therefore be spread via the movement of soil or machinery/equipment that is contaminated with soil. (Gonzalez, 1983)

The peaks of adult emergence for *N. xanthographus* are in September-October and December-February (Gonzalez, 1983). This overlaps with the main season for table grapes in Chile (late November-late April, i.e. late spring-mid autumn).

Otiorhynchus sulcatus is reported as a serious pest of a range of horticultural hosts (including *Vitis*) with the root-feeding larval stage the most damaging. For example, due to defoliation and/or root damage. (CABI, 2002).

Adults of *O. sulcatus* are 7-11mm long and brown-black. Eggs are subspherical, approximately 1mm in diameter, pearly-white then gradually becoming brown and finally black. Larvae are white

and 9-10.5mm long. The species is generally parthenogenetic but bisexual races are known from Italy. Under laboratory conditions, females can produce up to 750 eggs each. Larvae feed on the roots of plants and could therefore be spread via the movement of soil or machinery/equipment that is contaminated with soil. (CABI, 2002).

Adult emergence of *O. sulcatus* may also overlap with the season for table grapes in Chile. Adult emergence in Californian vineyards varies between seasons but has been recorded in early April-early July with peaks in mid-late May (CABI, 2002).

Little information is available on *Geniocremnus chiliensis.* SAG (2002) commented that it is native to Chile, can be found accidentally feeding on leaves in grapevines, cannot fly, is subterranean and adults can easily be detected during phytosanitary inspection.

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GROUP 6 – FRUIT FLY

Ceratitis capitata (Wiedemann) [Diptera: Tephritidae] (Mediterranean fruit fly)

Synonyms and changes in combination: *Ceratitis citriperda* Macleay, 1829; *Ceratitis hispanica* De Brême, 1842; *Pardalaspis asparagi* Bezzi, 1991; *Tephritis capitate* Wiedemann, 1824.

Hosts: *C. capitata* is a highly polyphagous species whose larvae develop in a very wide range of unrelated tropical and temperate fruits, vegetables, ornamental plants and wild hosts. Reported hosts include over 200 species from the families Anacardiaceae, Chrysobalanaceae, Cucurbitaceae, Ebenaceae, Loganiaceae, Malpighiaceae, Meliaceae, Oleaceae, Podocarpaceae, Rosaceae, Rubiaceae, Rutaceae, Sapotaceae, and Solanaceae. Hosts include: *Actinidia chinensis* (Chinese gooseberry, kiwi fruit); *Anacardium occidentale* (cashew); *Annona* spp. (custard apple); *Artocarpus altilis* (breadfruit); *Artocarpus heterophyllus* (jackfruit); *Asimina* spp. (pawpaw); *Asparagus* spp. (asparagus); *Averrhoa carambola* (carambola); *Brassica oleracea* (broccoli, cabbage, cauliflower, wild cabbage); *Cananga odorata* (ylang ylang); *Capsicum* spp. (capsicum, chilli, pepper, wild red pepper); *Citrus* spp. (citrus); *Coffea* spp. (coffee); *Cucumis* spp. (melon); *Cucurbita* spp. (marrow, pumpkin, squash); *Cydonia oblonga* (quince); *Cydonia sinensis* (Chinese quince); *Cyphomandra betacea* (tamarillo, tree tomato, tomato tree); *Diospyros decandra* (persimmon); *Diospyros ebenum* (black sapote); *Ficus* spp. (fig); *Fortunella* spp. (kumquat); *Gossypium* spp. (cotton); *Juglans* spp. (walnut); *Litchi chinensis* (litchi, lychee); *Lycopersicon esculentum* (tomato); *Malus* spp. (apple); *Mangifera indica* (mango); *Musa* spp. (banana, plantain); *Pandanus odoratissimus* (breadfruit); *Pandanus tectorius* (screw pine); *Passiflora* spp. (passion flower, passion vine); *Persea americana* (avocado); *Phaseolus lunatus* (bean); *Phoenix dactylifera* (date, date palm); *Phyllanthus acidus* (Ceylon gooseberry, Indian gooseberry, Malay gooseberry, Otaheite gooseberry, star gooseberry); *Prunus* spp. (cherry, hog plum, peach, plum, prune); *Pyrus communis* (pear); *Ribes* spp. (currant); *Robinia* spp. (locust); *Rosa* spp. (rose, roseberry); *Rosmarinus officinalis* (rosemary); *Rubus* spp. (blackberry, caneberry, dewberry, loganberry, raspberry, youngberry); *Syzygium* spp. (brush cherry, lillypilly, Malay apple); *Terminalia* spp. (tropical almond); *Vaccinium* spp. (blueberry, cranberry, huckleberry); *Vicia faba* (broad bean); *Vitis* spp. (grape). (See White and Elson-Harris (1994) for detailed discussion on hosts).

Distribution: *C. capitata* is considered to be eradicated from Chile. Albania, Algeria, Angola (restricted distribution, rd), Argentina (rd), Australia (Western Australia only), Benin, Bolivia, Botswana, Brazil, Burkina Faso, Burundi (rd), Cameroon, Cape Verde, Colombia, Congo (rd), Congo Democratic Republic, Corsica, Costa Rica, Côte d'Ivoire, Croatia (rd), Cyprus, Ecuador (rd), Egypt, El Salvador (rd), Ethiopia, France (rd), Gabon, Ghana, Greece, Guatemala (rd), Guinea (rd), Honduras (rd), Israel, Italy, Jamaica, Jordan, Kenya, Lebanon, Liberia, Libya (rd), Madagascar (rd), Malawi, Mali, Malta, Mauritius, Mexico, Morocco, Mozambique (rd), Netherlands (absent, not established), Netherlands Antilles, Nicaragua, Niger, Nigeria (rd), Panama, Paraguay, Peru, Portugal, Réunion (rd), Russian Federation, Saint Helena (rd), Sao Tome and Principe (rd), Saudi Arabia, Senegal, Seychelles (rd), Sierra Leone, Slovenia (rd), South Africa, Spain, Sudan, Switzerland (rd), Syria, Tanzania, Togo, Tunisia, Turkey, Uganda, Uruguay, USA (rd), Venezuela, Yemen, Yugoslavia (rd), Zimbabwe.

Biology:

A comprehensive data sheet on Mediterranean fruit fly is provided in CABI/EPPO (1997). Eggs are laid below the skin of host fruit and attacked fruit will usually show signs of oviposition

punctures. The eggs hatch 2-18 days later and the larvae then feed for another 6-11 days (at 13-28ºC). Adults can be monitored by traps baited with male lures (trimedlure and terpinyl acetate but not methyl eugenol). Adult flight and infested fruit are considered to be the main means of movement and dispersal with *C. capitata* capable of flying at least 20km. *Ceratitis capitata* is an A2 pest for EPPO and is of quarantine significance throughout the world (e.g. USA, Japan). Its presence in Europe, even as temporary adventive populations, is considered to potentially lead to severe constraints of fruits to uninfested areas in other continents.

The cost of eradicating this pest from Western Australia has been estimated at $70m and the current costs incurred by South Australia due to this pest are estimated at $1.4m per annum (based on trapping, manned check point and 1.5 incursions per year) (Mumford *et al.*, 2001).

References:

CABI (2002). Crop Protection Compendium. CAB International, Wallingford, UK.

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Mumford, J.D., Knight, J.D., Cook, D.C., Quinlan, M.M., Pluske, J. and Leach, A.W. (2001). Benefit Cost Analysis of Mediterranean Fruit Fly Management Options in Western Australia. Imperial College, Ascot, United Kingdom.
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GROUP 7 – SPIDER

Latrodectus mactans (Fabricius) [Araneae: Theridiidae] (Black widow spider)

Comprehensive biological and sanitary related information on this species (and spiders in general) is provided in a series of documents recently produced by the New Zealand Ministry of Agriculture and Forestry and Ministry of Health (see below). The Pest Risk Assessment document is particularly relevant in providing similar technical information to that presented in the data sheets for other pest groups in this IRA. Stakeholders are recommended to consult these documents for technical information on *L. mactans*.

- Pest Risk Assessment of Spiders Associated with Table Grapes from United States of America (State of California), Australia, Mexico and Chile. Ministry of Agriculture and Forestry, Wellington, New Zealand.
- Mitigation Measures for the Management of Risks Posed by Exotic Spiders Entering New Zealand in Association with Imported Table Grapes. Ministry of Agriculture and Forestry, Wellington, New Zealand.
- Towards a Health Impact Assessment Relating to Venomous Spiders Entering New Zealand in Association with Imported Table Grapes: A Discussion Document. Ministry of Health, Wellington, New Zealand.
- Review of Submissions (*to the above 3 documents*). September 2002. Ministry of Agriculture and Forestry, Ministry of Health and Department of Conservation.

These documents are available electronically at http://www.maf.govt.nz/biosecurity/pests-diseases/plants/risk/spiders-grapes/index.htm