United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine

Importation of Fresh Tomato Fruit (*Lycopersicon esculentum* Mill.) from Chile into the United States

A Pathway-Initiated Plant Pest Risk Analysis

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PEST RISK ASSESSMENT FOR TOMATO FRUITS FROM CHILE TO THE USA

Executive Summary

The Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA) and Servicio Agrícola y Ganadero (SAG) in Chile prepared this pest risk assessment to examine plant pest risks associated with the importation of tomato fruit (*Lycopersicon esculentum* Mill.) from Chile into the United States. This is a qualitative risk assessment and the estimates of risk are expressed in qualitative terms (high, medium, low) rather than in numerical terms, such as probabilities or frequencies. The details of the methodology and rating criteria used to analyze these pests are in the Guidelines for Pathway-Initiated Pest Risk Assessment, version 5.02 (USDA, 2000). A list of pests attacking tomatoes in Chile was developed based on the scientific literature and PPQ records of intercepted pests. Based on this list, 15 pests were identified as quarantine pests and 4 quarantine pests likely to follow the pathway were analyzed further. A pathway is any means that allows the entry and spread of a pest. Quarantine pests likely to follow the pathway and selected for further analysis include the insects, *Rhagoletis tomatis, Ceratitis capitata, Tuta absoluta,* and *Liriomyza huidobrensis.* All of these pests pose phytosanitary risks to American agriculture. The Pest Risk Potential was estimated to be High for *C. capitata, R. tomatis,* and *Tuta absoluta,* and Medium for *Liriomyza huidobrensis.* The Pest Risk Potential is the summation of the ratings for the Consequences of Introduction and the Likelihood of Introduction. The Consequences of Introduction value was estimated by assessing the Climate/Host Interaction, the Host Range, the Dispersal Potential, the Economic Impact, and the Environmental Impact, which are based on the biology of the pests. The Likelihood of Introduction value was estimated by evaluating the proposed Quantity Imported Annually in combination with the Pest Survival Potential. The Pest Survival Potential evaluates the likelihood that the pests survive post-harvest treatments, survive shipment, avoid detection at the port of arrival, are moved to a suitable habitat, and come into contact with suitable host material. Risk mitigation recommendations for these pests are contained at the end of this document. The primary risk mitigations are a systems approach containing a pest free greenhouse and trapping protocols for the fruit flies.

Table of Contents

1. Introduction

This plant pest risk analysis (PRA) was prepared in Chile by Servicio Agrícola y Ganadero (SAG). Final versions of the PRA were edited and revised by APHIS. The PRA was prepared to analyze the risks posed to U.S. plant resources by the proposed importation of fresh tomato fruits (*Lycopersicon esculentum*) from Chile to United States, including the Hawaiian Islands. Authority for APHIS to regulate the importation of tomato fruit is derived from the Plant Protection Act (2000) and Title 7 of the Code of Federal Regulations (CFR) Part 319, Subpart 56.

1.1 Initiating event/Proposed action: This PRA was initiated by SAG to propose modifications to the current phytosanitary requirement of product entry of tomato fruits from Chile into the United States. Currently, tomatoes from Chile require fumigation with Methyl Bromide because of the phytosanitary risks posed by their importation into the United States. Chile has proposed the elimination of mandatory fumigation based on a systems approach and fruit fly trapping protocol used for the growing of tomatoes.

Chile requested approval to export fresh tomato fruits to the continental United States and Hawaii. On at least two previous occasions, entry for tomatoes was denied because an appropriate treatment was not available for *Rhagoletis tomatis* and *Tuta absoluta.* In 1998, entry of tomatoes from Chile was approved with treatment for *R. tomatis* and *T. absoluta*. That decision and those preceding it were made in the Decision Sheet format rather than the current PRA standard format. When the current request for tomatoes was made, Chile was informed that a PRA would be required. When given the option, Chile chose to conduct the PRA themselves. At least two previous drafts were received by APHIS and reviewed by various members of the PPQ staff. The PRA document includes by a risk management section prepared by APHIS PPQ Risk Mitigation staff.

1.2 Pest Interception History

The results obtained from a search of the USDA Port Information Network Pest Interception (PIN 309, 2003) Database are summarized in **Appendix IV.** USDA made 4 interceptions of quarantine pests on tomatoes from Chile between January 1985 and May 2004. Three of the interceptions were made in areas other than permit cargo shipments- ship stores (2) and crew's quarters (1). The intercepted pests included Gelechiidae species (2), *Gnorimoschema* species (1), and Tephritidae species (1). Interceptions of quarantine pests on tomato fruits from all countries are included in **Appendix V**. There were 1090 separate interceptions from 1985 to February, 2005.

2. Pest Risk Assessment

2.1 Assessment of weediness Potential.

The potential of the commodity to become a weed after it enters the United States was examined and a pest-initiated pest risk assessment was not conducted because the analysis did not indicate that the commodity had a significant weediness potential (**Table 1**).

2.2 Lycopersicon esculentum weed potential

Table 1: Process to determine the product weed potential

Commodity: *Lycopersicon esculentum*- fresh tomato fruits

Product: *Lycopersicon esculentum* Mill., tomato (Solanaceae) native from South America.

Phase 1: The *Lycopersicon esculentum* species is cultivated in the USA.

Phase 2: Is the species listed in?

Yes	*Geographical Atlas of World Weeds* (Holm *et al*, 1979)
No	*World's Worst Weeds* (Holm *et al*, 1977)
No	*World Weeds: Natural Histories and Distribution* (Holm *et al*, 1977)
No	*Report of the Technical Committee to Evaluate Noxious Weeds; Exotic Weeds for Federal Noxious Weed Act* (Gunn and Ritchie, 1982)
No	*Economically Important Foreign Weeds* (Reed, 1977)
No	Weed Science Society of America list (WSSA, 1989)
No	Others references

Conclusion: *Lycopersicon esculentum* Mill. is indicated in the Geographical Atlas of World Weeds (Holm *et al*, 1979) as "common weed" in Taiwan and as weed of unknown importance in Honduras and the United States. However, since *Lycopersicon esculentum* is cultivated for consumption in the United States, the Pest Risk Assessment will continue.

2.3. Previous Pest Risk Assessment, Current Status and Pest Interceptions

In 1981, the United States did not allow tomatoes entry from Chile because of the absence of an acceptable treatment against *Rhagoletis ochraspis* (=*tomatis*) [USDA, Decision on entry status of fruits and vegetables under quarantine N° 56, Nov, 1981].

In 1992, Dr. Victoria Yokohama issued a report regarding Chile's request to export fresh tomatoes to the United States, stating in this document that *Rhagoletis tomatis* (Diptera: Tephritidae) and *Scrobipalpula* (=*Tuta*) *absoluta* (Lepidoptera: Gelechiidae) are quarantine pests that require a fumigation treatment, which was accepted by USDA (USDA , Decision sheet on entry status of fruits and vegetables under quarantine, 1992).

In Volume 62 of the USDA Federal Register Nº 200 of October 16th of 1997, the authorization for the entry of fresh tomato fruits from Chile to the United States required quarantine treatment with Methyl Bromide, against *Rhagoletis tomatis* and *Scrobipalpula* (=*Tuta*) *absoluta*.

2.4. Pest Categorization.

Plant Protection and Quarantine (PPQ) adheres to the accepted international definition(s) of a quarantine pest, as a pest of potential economic importance to the area endangered thereby and not yet present in the PRA area, or present but not widely distributed and being officially controlled (FAO 1996; FAO 2001). The first step in identifying quarantine pests is to develop a comprehensive list of pests that are associated with the parent species of the proposed export and are known to occur in the country or region from which the commodity is to be exported. All pests on such a list could be considered to be "of potential economic importance" because they are associated with the plant species.

Table 2 shows the list of pests reported to be associated with *Lycopersicon esculentum* in Chile. This list identifies: (1) the geographic distribution of the pests with respect to the exporting country and the United States, (2) the generally affected plant part or parts, (3) the quarantine status of each pest with respect to the United States, (4) whether the pest is likely to follow the pathway and enter the United States on commercially exported *Lycopersicon esculentum* fruit, and (5) pertinent citations for the distribution and biology of the pest. Many of the organisms in **Table 2** were eliminated from further consideration as sources of phytosanitary risk because they do not satisfy the definition of a quarantine pest and/or they were unlikely to follow the pathway.

Quarantine pests that were reasonably expected to follow the pathway, *i.e.*, be included in commercial shipments of *Lycopersicon esculentum* fruit, were analyzed in detail. Other plant pests in this assessment, not chosen for further scrutiny, may be potentially detrimental to the agricultural production systems and/or ecosystems of the United States; however, there were a variety of reasons for not subjecting them to further analysis. For example, they were associated mainly with plant parts other than the commodity; they may be associated with the commodity, but it was not considered reasonable to expect these pests to remain with the commodity during processing; they have been intercepted as biological contaminants of these commodities during inspection at ports-of-entry but would not be expected to be present with every shipment. Pest risk analyses, by necessity, must focus on organisms for which biological information is available; therefore, none of the pests listed at the level of genus or higher were selected for further analyses because specific information was lacking. Lack of specific information or identification to the specific level does not indicate that a pest does not pose a serious phytosanitary risk to agriculture in the United States. It may simply indicate the quality of the specimen or the limits of current taxonomic knowledge. If pests identified to higher taxa are intercepted in the future, a reevaluation of their risk may occur.

The decision not to further analyze a particular pest applies only to the current PRA; a pest may pose a different level of risk for the same commodity from a different country or from a different commodity from the same host plant species. However, should any of the pests be intercepted in shipments of the commodity, quarantine action may be taken at the port of entry and additional risk analyses may be conducted.

Table 2: Pests of *Lycopersicon esculentum* from Chile

Pest	Geo-graphical Distribution	Affected Organ(s)	Quar-antine pest	Pathway		References
				Fruit	Clusters	
ARTHROPODS						
Acari						
Aculops lycopersici (Tryon)	Chile, USA	Whole plant, (except fruits) mainly leaves	no	no	yes	Gillespie, 1994 ; González, 1989.
Tetranychus urticae (Koch)	Chile, USA	Leaves	no	no	yes	Jones, et al., 1991; González, 1989.
COLEOPTERA						
Curculionidae						
Listroderes costrirostris (Schonherr) Synonym: *L. obliquus* Klug	Chile, USA	Leaves, buds, root	no	no	yes	CABI, 2002; Artigas, 1994, Elgueta, 1993.
Meloidae						
Epicauta pilme (Molina)	Chile	Leaves	yes	no	no	Lanteri, et al, 2002; Artigas, 1994.
Tenebrionidae						
Blapstinus punctulatus Sol.	Chile	recently emerged seed, seedlings	yes	no	no	Prado, 1991; González, 1989; Artigas, 1994.
DIPTERA						
Agromyzidae						
Liriomyza huidobrensis (Blanchard)	Chile	leaf (miner), foliage, can pupate on fruit	yes	yes	yes	Artigas, 1994; CABI 2003

Pest	Geo-graphical Distribution	Affected Organ(s)	Quar-antine pest	Pathway		References
				Fruit	Clusters	
Liriomyza quadrata Malloch	Chile, restricted distribution in USA	Leaves, can pupate on fruit	no	yes	yes	Artigas, 1994.
Liriomyza sativa Blanchard	Chile, USA	Leaves	no	no	yes	Artigas, 1994.
Tephritidae						
Ceratitis capitata Wiedemann	Chile[(1)], USA[(2)] (HI)	Fruit	yes	yes	yes	CABI/EPPO, 1999
Rhagoletis tomatis (Foote)	Chile (restricted distribution)	Fruit	yes	yes	yes	White and Elson, 1992; Artigas, 1994.
HEMIPTERA						
Aleyrodidae						
Bemisia tabaci (Gennadius, 1889)	Chile (restricted distribution), USA	Leaves	no	no	no	Bellows et al. 1994; CABI/EPPO, 1999, Jones, et al., 1991; SAG, 1999
Trialeurodes vaporariorum (Westwood 1856)	Chile, USA	whole plant, generally underside of leaves	no	no	no	CABI, 2002; Artigas, 1994.
Aphididae						
Aphis gossypii (Glover)	Chile, USA	whole plant (except fruits)	no	no	yes	CABI, 2002; Artigas, 1994.
Aulacacorthum solani (Kalt.)	Chile, USA	whole plant (except fruits)	no	no	yes	CABI, 2002; Prado, 1991; Artigas, 1994.

Pest	Geo-graphical Distribution	Affected organ	Quar-antine pest	Pathway		References
				Fruits	Clusters	
Brachycaudus helichrysi (Kaltenbach)	Chile, USA	whole plant	no	yes	yes	CABI, 2002; Artigas, 1994.
Capitophorus elaeagni Del Guercio	Chile, USA	whole plant (except fruits)	no	no	yes	CABI, 2002; Prado, 1991 Hellmich and Lewis, 1995; Artigas, 1994.
Macrosiphum euphorbiae (Thomas)	Chile, USA	whole plant	no	yes	yes	CABI, 2002; Artigas, 1994.
Myzus persicae (Sulzer) 1776	Chile, USA	whole plant (except fruits)	no	no	yes	Artigas, 1994. CABI, 2003.
LEPIDOPTERA						
Gelechiidae						
Symmetrischema tangolias Gyen synonym: *Gnorismochema plaesiosema* (Turner)	Chile, USA	stem, buds	no	no	yes	CABI, 2002; Prado, 1991; Artigas, 1994
Phthorimaea operculella Zeller 1873	Chile, USA	stems, leaves, roots	no	no	no	CABI, 2002; Artigas, 1994.
Tuta absoluta (Meyrick, 1917) Polyvolny 1994	Chile	whole plant, fruit	yes	yes	yes	CABI 2002; PIN 309 , 2003; Artigas, 1994.
Noctuidae						
Agrotis bilitura (Guenee) synonym: *Pseudoleucania bilitura* (Guen.)	Chile	leaf, stem, fruit (superficial)	yes	no[(3)]	no[(3)]	CABI, 2002; Prado, 1991; Artigas, 1994.
Agrotis ipsilon (Hufnagel, 1766)	Chile, USA	leaf, stem, fruit (superficial)	no	no[(3)]	no[(3)]	CABI, 2002; Artigas, 1994.

Pest	Geo-graphical Distribution	Affected organ	Quar-antine pest	Pathway		References
				Fruits	Clusters	
Agrotis malefida Guenée synonym: *Feltia malefida* Guennee	Chile, USA	leaf, stem, fruit (superficial)	no	no[(3)]	no[(3)]	Prado, 1991; Artigas, 1994.
Euxoa lutescens	Chile	leaf, stem, fruit (superficial)	yes	no[(3)]	no[(3)]	Prado, 1991; Artigas, 1994.
Feltia experta Walker	Chile	leaf, stem, fruit (superficial)	yes	no[(3)]	no[(3)]	Prado, 1991; Artigas, 1994.
Feltia subterranea (F.) synonym *Agrotis subterranea*	Chile, USA	whole plant (except fruits)	no	no[(3)]	no[(3)]	Artigas, 1994; CABI 2003
Heliothis gelotopeon (Dyar)	Chile	leaf, stem, fruit (superficial)	yes	no[(3)]	no[(3)]	Prado, 1991; Artigas, 1994.
Heliothis virescens (Fabricius, 1777)	Chile, USA	leaf, stem, fruit (superficial)	no	no[(3)]	no[(3)]	CABI, 2002; Artigas, 1994.
Heliothis zea synonym *Heliocarpa zea* (Boddie)	Chile, USA	leaf, stem, fruit (superficial)	no	no[(3)]	no[(3)]	CABI 2002; Artigas, 1994.
Pseudaletia punctulata (Blanche) synonym: *Mythimna unipuncta* Haworth	Chile, USA	leaf, stem	no	no	no[(3)]	CABI, 2002; Prado, 1991; Artigas, 1994.
*Peridroma clerica (*Huber)	Chile, USA	foliage, soft buds and roots	no	no[(3)]	no[(3)]	CABI, 2002; Artigas, 1994.
*Peridroma saucia (*Huber)	Chile, USA	whole plant, fruit (superficial)	no	no[(3)]	no[(3)]	CABI, 2002; Artigas, 1994.
Phytometra oo (Cramer) synonym *Chrysodeixis includens* (Walker)	Chile, USA	whole plant (except fruits)	no	no	no	CABI, 2002; Artigas, 1994.

Pest	Geo-graphical Distribution	Affected organ	Quar-antine pest	Pathway		References
				Fruits	Clusters	
Rachiplusia nu (Guenee)	Chile	Leaves and flowers	yes	no	no	CABI, 2002; Prado, 1991; Artigas, 1994.
Spodoptera eridania Stoll	Chile restricted, USA	fruit, leaves	no	yes[(3)]	yes[(3)]	CABI, 2002; Artigas, 1994.
Spodoptera frugiperda J.E. Smith	Chile restricted; USA	whole plant (except fruits)	no	yes[(3)]	yes[(3)]	CABI, 2002; CABI, 2002; Artigas, 1994.
Syngrapha gammoides (Blanche)	Chile	flowers, buds, leaves	yes	no	no	CABI, 2002; Prado, 1991; Artigas, 1994.
Sphingidae						
Manduca sexta (Linnaeus)	Chile, USA	leaves	no	no	no	CABI, 2002; Artigas, 1994.
THYSANOPTERA						
Thripidae						
Frankliniella occidentalis (Pergande)	Chile, USA	leaves, flowers	no	no	no	CABI, 2002; Jones, et al., 1991; Artigas, 1994.
Thrips tabaci Linneman 1889	Chile, USA	leaves, flowers	no	no	no	CABI, 2002; Artigas, 1994.
BACTERIA						
Clavibacter michiganensis subsp. *michiganensis* (Smith) Davis et al.	Chile, USA	whole plant	no	yes	yes	CABI, 2002
Pseudomonas corrugata Roberts and Scarlett	Chile, USA	stem	no	no	no	CABI, 2002; Bradbury, 1986; Bond, 1986.

Pest	Geo-graphical Distribution	Affected organ	Quar-antine pest	Pathway		References
				Fruits	Clusters	
Pseudomonas syringae pv. *tomato* (Okabe) Young, Dye, and Wilkie	Chile, USA	leaves, fruit	no	yes	yes	Bradbury, 1986; Latorre & Lolas, 1988; Jones, et al., 1991
Ralstonia solanacearum (Smith) Yabuuchi et al. synonym *Pseudomonas solanacearum*	Chile, USA Chile: race 3 biovar 2	stem collar	yes	yes[(4)]	yes[(4)]	CABI, 2002.
Xanthomonas campestris pv. *vesicatoria* (Doidge) Dowson	Chile, USA	whole plant	no	yes	yes	Bradbury, 1986; SAG 2002; Jones, et al., 1991
FUNGI						
Alternaria alternata f.sp. lycopersici (Cooke) L.R. Jones synonym: *A. tomato* (Cooke) L.R. James	Chile, USA	stems, leaves, and fruit	no	yes	yes	Goode and Montgomery, 1979; CABI, 2002.
Alternaria solani Sorauer	Chile, USA	fruit	no	yes	yes	Douglas, D.R. 1972; Jones, et al., 1991; Mujica and Vergara, 1980.
Botrytis cinerea Pers.:Fr. synonym *Botryotinia fuckeliana* (deBary) Whetzel	Chile, USA	leaves ,stems and fruits	no	yes	yes	CABI, 2002
Colletotrichum coccodes (Wallr.) Hughes synonym: *C. atramentarium* (Berk. & Broome) Taubenhaus	Chile, USA	stems, fruit, root	no	yes	yes	Jones, et al., 1991 ; SAG 2002

Pest	Geo-graphical Distribution	Affected organ	Quar-antine pest	Pathway		References
				Fruits	Clusters	
Erysiphe polygoni DC synonym *E. betae* (Vanha) Weltzien	Chile, USA	leaves	no	no	no	CABI, 2002; Coyier et al., 1975
Fusarium spp.	Chile, USA	roots	no	no	no	Jones, et al., 1991
Fusarium oxysporum f.sp. lycopersici (Sacc.) Snyder and Hansen	Chile, USA	whole plant	no	yes	yes	CABI, 2002; Jones, et al., 1991.
Geotrichum candidum (Link)	Chile, USA	post harvest	no	yes	yes	CABI, 2002; SAG, 2002.
Leveillula taurica (Lev.) G.Arnaud	Chile, USA	Leaves	no	no	no	Farr, et al., 1989.
Macrophomina phaseolina (Tassi) Goid	Chile, USA	roots, stem	no	no	no	CABI, 2002.
Mucor piriformi S. Fischer	Chile, USA	fruit	no	yes	yes	Farr, et al., 1989.
Mycovellosiella fulva (Cooke) Arx synonym *Cladosporium fulvum* Cooke	Chile, USA	leaves	no	no	no	CABI, 2002.
Penicillium expansum Link synonym: *Penicillium crustaceum* (L.) Fr.	Chile, USA	fruit	no	yes	yes	CABI, 2002; Mujica and Vergara, 1980
Phoma sp.	Chile	Leaves	yes	no	no	Mujica and Vergara, 1980, CABI, 2002.
Phytophthora infestans (Mont.) de Bary	Chile, USA	root, whole plant	no	yes	yes	Farr, et al., 1989.
Phytophthora parasitica Dastur synonym: *P. nicotianae Breda de Haan* var. *parasitica* (Dastur) G.M. Waterhouse	Chile, USA	root, collar	no	no	no	Farr, et al., 1989; Jones, et al., 1991
Pyrenochaeta lycopersici R. Schneider and Gerlach	Chile, USA	root	no	no	no	Farr, et al., 1989; Jones, et al., 1991

Pest	Geo-graphical Distribution	Affected organ	Quarant-ine pest	Pathway		References
				Fruits	Clusters	
Pythium spp.	Chile, USA	root, stem	no	no	no	SAG, 2002; Jones, et al., 1991.
Rhizoctonia solani synonym *Thanatephorus cucumeris* Frank Donk	Chile, USA	whole plant	no	no	no	CABI, 2002; Jones, et al., 1991.
Sclerotina minor Jagger	Chile, USA	fruit	no	yes	yes	Farr, et al., 1989
Sclerotina sclerotiorum (Lib.) de Bary	Chile, US	whole plant, fruit	no	yes	yes	CABI, 2002; Jones, et al., 1991.
Sclerotium rolfsii Sacc.	Chile, USA	whole plant, fruit	no	yes	yes	Farr, et al., 1989
Verticillium albo-atrum Reinke and Berthold	Chile, USA	whole plant	no	yes	yes	EPPO, 2002; CABI, 2002
Verticillium dahliae Kleb	Chile, USA	whole plant	no	no	no	Bell, 1992; EPPO, 2002
NEMATODES						
Globodera rostochiensis (Wollenweber, 1923) Behrens, 1975	Chile, USA (NY- under official quarantine)	root	yes	no	no	CABI, 2002
Meloidogyne arenaria (Neal) Chitwood	Chile, USA	root, tubers	no	no	no	CABI, 2002
Meloidogyne hapla Chitwood	Chile, USA	root	no	no	no	Phillippi et al., 1996
Meloidogyne incognita (Kofoid and White) Chitwood	Chile, USA	root	no	no	no	Walters and Barker, 1994; CABI, 2002; Jones, et al., 1991
Meloidogyne javanica (Treub) Chitwood	Chile, USA	root	no	no	no	CABI, 2002; Jones, et al., 1991; Jimenez, 1979
Paratrichodorus minor	Chile, USA	Root	no	no	no	CABI, 2002

Pest	Geo-graphical Distribution	Affected organ	Quar-antine pest	Pathway		References
				Fruits	Clusters	
Pratylenchus thornei Sher and Allen	Chile, USA	Root	no	no	no	EPPO, 2002; CABI, 2002.
Xiphinema grupo americano Cobb	Chile, USA	Root	no	no	no	CABI, 2002; Jones, et al., 1991
VIRUS						
Alfalfa mosaic virus Bromoviridae	Chile, USA	whole plant, excluding fruit	no	no	no	CABI, 2002; Jones, et al., 1991.
Cucumber mosaic virus Cucumovirus	Chile, USA	whole plant	no	yes(4)	yes(4)	CABI, 2002; Jones, et al., 1991.
Pepino mosaic virus Potexvirus	Chile, USA	whole plant	no	yes	yes	CABI, 2002, SAG, 2002.
Potato virus X Potexvirus	Chile, USA	Leaves	no	yes	yes	EPPO, 2002, SAG, 2002.
Potato virus Y Potyvirus	Chile, USA	whole plant	no	yes(4)	yes(4)	Hansen and Lesemann, 1978; CABI, 2002; Jones, et al., 1991.
Tomato mosaic virus Tobamovirus	Chile, USA	whole plant	no	yes(4)	yes(4)	CABI, 2002; Jones, et al., 1991.
Tomato ringspot virus Comoviridae: Nepovirus	Chile, USA	whole plant	no	yes(4)	yes(4)	Jones, et al., 1991.
Tomato spotted wilt virus Bunyaviridae: Tospovirus	Chile, US	whole plant, fruit	no	yes(4)	yes(4)	CABI/EPPO, 1999; Jones, et al., 1991.

(1): *Ceratitis capitata* is considered established in Region I of Chile.

(2): A *Ceratitis capitata* outbreak occurred in Florida in 1997. *C. capitata* is currently considered erradicated in the continental United States (CABI, 2002).

(3): It is considered that these pests do not follow the pathway, because they superficially feed on the fruits (CABI, 2002; Prado, 1991; Artigas, 1994).

(4): Although these viruses and bacteria are transmitted by seeds, tomatoes for consumption are not considered as pathway for the entry of these phytopathogens because an infested plant most likely would not be able to produce fruit or would not produce the quality of fruit that would be acceptable for commercial export purposes.

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2.5 Pests Categorization

As defined by international standards (FAO, 2001), a quarantine pest is, "A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled. The pests listed below in Table 3 have been determined to meet this standard and are regarded as quarantine pests by APHIS.

Table 3: Quarantine Pests Associated with Tomatoes from Chile

Arthropods:
Agrotis bilitura (Guenee) Lepidoptera:Noctuidae
Blapstinus punctulatus (Sol.) Coleoptera: Tenebrionidae
Ceratitis capitata (Wiedemann) Diptera: Tephritidae
Epicauta pilme (Molina) Coleoptera: Meloidae
Euxoa lutescens Lepidoptera: Noctuidae
Feltia experta Walker Lepidoptera:Noctuidae
Heliothis gelotopeon Lepidoptera:Noctuidae
Liriomyza huidobrensis (Blanchard) Diptera:Agromyzidae
Rachiplusia nu (Guenee) Lepidoptera:Noctuidae
Rhagoletis tomatis (Foote) Diptera:Tephritidae
Syngrapha gammoides (Blanche) Lepidoptera:Noctuidae
Tuta absoluta (Meyrick) Lepidoptera:Gelechiidae

Diseases:

Phoma species
Ralstonia solanacearum race 3 biovar 2

Nematodes :

Globodera rostochiensis (Wollenweber, Behrens)

2.6 Quarantine Pests selected for further analysis:

Only those quarantine pests that can be reasonably expected to follow the pathway of commercial shipments of export tomatoes are analyzed further. The quarantine pests selected for further analysis are summarized in **Table 4**. Other quarantine pests not included in this summary have the potential to be detrimental to U.S. agriculture. However, there were a variety of reasons for not subjecting them to further analysis.

The following quarantine pests primarily attack plant parts other than the fruit: *Epicauta pilme, Blapstinus punctulatus, Rachiplusia nu, Syngrapha gammoides,* and *Globodera rostochiensis* (CABI, 2002; Prado, 1991; Artigas, 1994).

The following quarantine pests may feed, inhabit or be associated with tomato fruit but are not likely to follow the pathway because they are highly visible during harvest and are often easily removed or disturbed during the growing season, at harvest or during packing procedures by hand, or they may escape from the commodity by flying away, falling to the ground or rapidly crawling from the fruit to the foliage: *Agrotis bilitura, Euxoa lutescens, Feltia experta,* and *Heliothis gelotopeon* (CABI, 2002; Prado, 1991; Artigas, 1994).

Finally, the following organism identified only to genus is not selected for further analysis because the only *Phoma* species that is listed in CABI (2002) as occurring in Chile also occurs in the United States (CABI 2002). Additionally, of the two most common *Phoma* species in tomatoes, one does not occur in Chile and the other species occurs in the United States. In addition, the lack of species identification may indicate the limits of the current taxonomic knowledge or the life stage or the quality of the specimen submitted for identification. By necessity, pest risk assessments focus on the organisms for which biological information is available. The lack of identification at the specific level does not rule out either the possibility that a high risk quarantine pest was intercepted or that the intercepted pest was not a quarantine pest. Conversely, development of detailed assessments for known pests that inhabit a variety of ecological niches, such as internal fruit feeders or foliage pests, allow effective mitigation measures to eliminate the known organisms as well as similar but incompletely identified organisms that inhabit the same niche.

Ralstonia solanacearum race 3 biovar 2 is a quarantine pest that can affect tomatoes and is reported to be in Chile (CABI, 2002). *Ralstonia solanacearum* race 3 biovar 2 are transmitted by seeds, however, tomatoes for consumption are not considered as pathway for the entry of these phytopathogens because an infested plant probably would not be able to produce fruit or would not produce the quality of fruit that would be acceptable for commercial export purposes.

Table 4: Quarantine Pests Selected for Further Analysis:

Arthropods:	*Ceratitis capitata* (Wiedemann) Diptera: Tephritidae
	Liriomyza huidobrensis (Blanchard) Diptera: Agromyzidae
	Rhagoletis tomatis (Foote) Diptera:Tephritidae
	Tuta absoluta (Meyrick) Lepidoptera:Gelechiidae

2.7 Assess Consequences of Introduction

This portion of the analysis considers negative outcomes that may occur when the quarantine pests identified as following the pathway of tomatoes from Chile are introduced into the United States. Potential consequences of introduction are rated using five risk elements: Climate-Host Interaction, Host Range, Dispersal Potential, Economic Impact, and Environmental Impact. These elements reflect the biologies, host ranges and climatic/geographic distributions of the pests. For each risk element, pests are assigned a rating of Low (1 point), Medium (2 points) or High (3 points) based on the criteria as stated in the Guidelines (USDA, 2000). A Cumulative Risk Rating is then calculated by summing all risk element values. For each pest, the sum of the five risk elements produces a cumulative risk rating for the consequences of introduction. This

cumulative rating is considered the biological indicator of the pest's potential to cause economic and environmental impacts. The ratings are summarized in **Table 5**.

2.7.1 Climate/Host Interaction

This risk element considers ecological zonation and the interactions of quarantine pests with their biotic and abiotic environments. When introduced into new areas, pests are expected to behave as they do in their native areas if the potential host plants are present and the climates are similar. Broad availability of suitable climates and a wide distribution of suitable hosts are assumed to increase the impact of a pest introduction. The ratings for this risk element are based on the relative number of United States Plant Hardiness Zones (United States Department of Agriculture, 1990) where the pest could establish based on its known climatic range.

Evidence	Risk Value
Rhagoletis tomatis *Rhagoletis tomatis* is found primarily in the III Region of Chile (SAG, 1987; SAG, 1989; SAG, 2002a; SAG 2002b; SAG 2002c). The climatic information of this Region (Appendix II) indicates that the annual lowest temperature corresponds to three "U.S Plant Hardiness Zones" (9, 10 and 11). The potential to establish in three "Plant Hardiness Zones" results in a **Medium (2)** categorization for the risk element "Host/Climate Interaction".	**Medium (2)**
Tuta absoluta *Tuta absoluta* is found from the I to X Region of Chile, including Metropolitan Region (Artigas, 1994). The climatic information of these regions (Appendix II) indicates that the annual lowest temperature for these regions corresponds to three "U.S. Plant Hardiness Zones" (9-11). The potential to establish in three "Plant Hardiness Zones" results in a **Medium (2)** categorization for the risk elements "Host/Climate Interactions".	**Medium (2)**
Liriomyza huidobrensis *Liriomyza huidobrensis* is found from the I to XI Region of Chile. The average minimum temperatures (-0.56 °C in the XI Region) corresponds to three "U.S. Plant Hardiness Zones" (9-11), which means a **Medium (2)** categorization for the risk element "Host/Climate Interactions".	**Medium (2)**
***Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae)** *Ceratitis capitata* is found in southern Europe and west Asia, throughout Africa and South and Central America (CABI, 2002), and in northern Australia (Hassan,1977). This species has the capacity to tolerate colder climates better than most other species of fruit fly (Weems, 1981). *C. capitata* is considered established in Region I of Chile. It is estimated that the species could become established in areas of the United States corresponding to 4 Plant Hardiness Zones (8-11) and is given a **High (3)** rating for this risk element. One or more hosts of *C. capitata* are present in these Plant Hardiness Zones of the United States (USDA-NRCS, 2002).	**High (3)**

2.7.2 Host Range

The risk posed by a plant pest is determined by both its ability to establish a viable, reproductive population and its potential for causing plant damage. This risk element assumes that the consequences of pest introduction are positively correlated with the pest's host range. Aggressiveness, virulence and pathogenicity also may be factors. The consequences are rated as a function of host range and consider whether the pest can attack a single species or multiple species within a single genus, a single plant family, or multiple families.

Evidence	Risk Value
Rhagoletis tomatis *Rhagoletis tomatis* is a monophagous pest, feeding primarily on tomatoes (*Lycopersicon esculentum*) (SAG, 1987, 2002a). *Rhagoletis tomatis* has not been reported in wild hosts (SAG, 1987, 2002a). This presents a **Low (1)** risk rating for host range.	**Low (1)**
Tuta absoluta *Tuta absoluta's* primary host is the tomato (*Lycopersicon esculentum*), however it also affects to *Nicotiana tabacum, Solanum tuberosum, Datura stramonium, Solanum tomatillo* and *Solanum nigrum* (CABI, 2002). These species are all from the Solanaceae family. However, several of these species are agricultural crops, which indicates a **Medium (2)** risk.	**Medium (2)**
Liriomyza huidobrensis *Liriomyza huidobrensis* has a large list of primary host plants. Among them are *Apium graveolens, Allium cepa, Allium sativum, Chrysanthemum x morifoliium, Cucurbita pepo, Lactuca sativa, Phaseolus vulgaris,* and *Pisum sativum.* Secondary hosts include *Amaranthus retroflexus, Aster* sp., *Beta vulgaris* var. *cycla, Beta vulgaris* var. *altisima, Beta vulgaris* var. *sacharifera, Brassica oleracea* var. *botritis, Brassica oleracea* var. *capitata, Calendula* sp., *Capsicum annuum, Cucumis melo, Cucumis sativus, Cynara esculentum, Coriandrum sativum, Datura* sp., *Dianthus caryophyllus., Gerbera* sp., *Gypsophila paniculata, Lathyrus odoratus, Lens culinaris, Linum usitatissimum Lycopersicon esculentum, Medicago sativa, Melilotus* sp., *Nicotiana tabacum, Petunia* sp., *Solanum melongena, Solanum tuberosum, Spinacia oleracea, Tagetes* sp., *Tropaeolum* sp., *Trifolium* spp., *Valerianella locusta, Verbena* sp., *Vicia faba, Zinnia elegans, Biden pilosa, Emilia sonchifolia, Galinsoga parviflora, Portulaca oleracea, Oxalis* sp., and *Sonchus* sp (CABI, 2002). Due to the large number of host species, the risk rating for *Liriomyza huidobrensis* is **High (3).**	**High (3)**

Evidence	Risk Value
Ceratitis capitata *Ceratitis capitata* has been recorded from a wide variety of host plants in several families, including *Coffea* sp. (Rubiaceae), *Capsicum annuum* (Solanaceae), *Citrus* spp. (Rutaceae), *Malus pumila*, *Prunus* spp. (Rosaceae), *Ficus carica* (Moraceae), *Psidium guajava* (Myrtaceae), *Theobroma cacao* (Sterculiaceae), *Phoenix dactylifera* (Arecaceae), and *Mangifera indica* (Anacardiaceae) (CABI, 2002). Because this species attacks multiple species in multiple plant families, it is given a rating of **High (3)** for the Host Range risk element.	**High (3)**

2.7.3 Dispersal Potential

Pests may disperse after introduction into new areas. The dispersal potential indicates how rapidly and widely the pest's economic and environmental impact may be expressed within the importing country or region and is related to the pest's reproductive potential, inherent mobility, and dispersal ability. Factors for rating the dispersal potential include: the presence of multiple generations per year or growing season, the relative number of offsprings or propagules per generation, any inherent capabilities for rapid movement, the presence of natural barriers or enemies, and dissemination enhanced by wind, water, vectors, or human assistance.

Evidence	Risk Value
Rhagoletis tomatis *Rhagoletis tomatis* is a native species in Chile (Frias, 1996). It is a multivoltine species. In the warm weather, *R. tomatis* can theoretically produce 4 to 6 generations a year (Frias, 1995; Frias et al, 1992). In the laboratory, the life cycle is about 52 days (Frias, 1995). Larvae feed from the inner part of fruits. The adults are strong flyers (Frias, 1996). Tomatoes from Chile have been rejected for export to the United States twice largely due to *R. tomatis.* In addition, one interception recorded in the PIN 309 database is for a Tephritidae species (**Appendix IV**). This Tephritidae species was most likely *R. tomatis* because importation of tomatoes from Chile had been suspended due to the occurrence of *R. tomatis.* Because *R. tomatis* is a multivoltine species and is strong flyer, it is rated **High (3)** for dispersal potential.	**High (3)**
Tuta absoluta *Tuta absoluta* is a multivoltine species that has continuous generations during the entire year in warmer regions (I Region) (Artigas, 1994). In colder zones of Chile, *T. absoluta* can have between four and eight generation per year. The female can lay a maximum of 45 eggs at a time (CABI, 2002). Larvae can move from an area to another through infested fruits. In addition, the adults are strong flyers (CABI, 2002). Since they are capable of producing continuous generations over the year and are strong flyers, they are given a **High (3)** rating for dispersal potential.	**High (3)**

Evidence	Risk Value
Liriomyza huidobrensis *Liriomyza huidobrensis* is a multivoltine species that lives as an adult almost all the year (CABI, 2002). Adults are weak flyers (CABI, 2002). The larval stage is completed inside the galleries, which are made in leaves. Pupation can occur within the leaf gallery but generally the pupae drops out of the leaf and pupates in the soil (CABI, 2002). In commercial tomato shipments throughout the world, they are often intercepted because the pupae leave the leaf and don't reach the soil but stick to the outside of the fruit or to the stem clusters (**Appendix V**; PIN 309, 2003). Since they produce several generations per year and they can follow the pathway, the risk rating is **Medium (2)** for dispersal potential.	**Medium (2)**
Ceratitis capitata *Ceratitis capitata* females may deposit up to 22 eggs per day and as many as 800 eggs in a lifetime, although 300 is the more typical number (Weems, 1981). Eggs are inserted into host fruit in small batches of one to ten (Weems, 1981). In Australia, breeding is continuous throughout the year, the species exhibiting several overlapping generations (Hassan, 1977). Adult flight, with a range of 20 km or more (Fletcher, 1989), and the transport of infested fruits are the major means by which this fruit fly is able to move and disperse to previously uninfested areas (CABI, 2002). Since 1985, *Ceratitis capitata* has been intercepted 2,366 times by PPQ at ports of entry, the majority of which were with fruit (PIN 309, 2003), which is evidence of this species' ability to be transported long distances with infested fruit. This species may also be dispersed via pupae in soil or growing medium accompanying plants (CABI, 2002). As this species has both high biotic potential (several generations per year and many offspring per reproduction) and capability for rapid dispersal (over 10 km/year via natural and/or human-mediated means), it is given a rating of **High (3)** for the Dispersal Potential risk element.	**High (3)**

2.7.4 Economical Impact

Introduced pests cause a variety of direct and indirect economic impacts such as reduced yield, reduced commodity value, loss of foreign or domestic markets, and non-crop impacts. Factors considered during the ranking process included whether the pest would: affect yield or commodity quality, cause plant mortality, act as a disease vector, increase costs of production including pest control costs, lower market prices, affect market availability, increase research or extension costs, or reduce recreational land use or aesthetic value.

Evidence	Risk Value
Rhagoletis tomatis The female *Rhagoletis tomatis* oviposits into the immature fruit and lays an egg under the outer skin, damaging the surface the fruit (Frías, 1991). Larvae emerge and bore into the inner part of the fruit. This larval behavior causes tissue degradation, early fruit abortion, or a delay in the fruit maturation. *R. tomatis* is not a known vector of phytopathogens. *R. tomatis* prefers backyard or abandoned crops, primarily, in Region III of Chile (SAG, 1987, 2002a). *R. tomatis* is a quarantine pest for both the United States and Argentina, because of this status, trapping for *R. tomatis* must be done during the growing season. In addition, in 1981 and 1992, the export of tomatoes from Chile to the United States was prohibited because of lack of treatment for *R. tomatis* (PPQ decision sheet, 1981). Since it does cause a lower yield of fruit and causes a potential loss of foreign markets due to its presence, it is given a **High (3)** economic impact.	**High (3)**
Tuta absoluta *Tuta absoluta* larvae damage green leaf tissue, fruits, occasionally the stems, and sometimes the flower (CABI, 2002). The new larvae feed first on leaves. Later instars feed primarily on fruits, especially when the population is very high. *T. absoluta* larvae vector fungi or bacteria, causing the fruit to rot (CABI, 2002). *T. absoluta* can cause increases in the production costs. In addition, in 1981 (USDA Decision on entry status of fruits and vegetables under quarantine N° 56, Nov, 1981), the export of tomatoes from Chile to the United States was prohibited because of lack of treatment for *T. absoluta.* Since it does cause a lower yield of fruit and causes a potential loss of foreign markets due to its presence, it is given a **High (3)** economical impact.	**High (3)**
Liriomyza huidobrensis *Liriomyza huidobrensis* larvae cause damage to the spongy mesophyll of leaves, producing leaf mines (CABI, 2002). The major economical impact appears in leaves. *L. huidobrensis* can vector phytopathogens (CABI, 2002). The larval stage is completed inside the galleries. Pupation can occur within the leaf gallery but generally the pupae drops out of the leaf and pupates in the soil. They are often intercepted in commercial tomato shipments throughout the world because the pupae don't reach the soil but stick to the outside of the fruit or to the cluster stems (PIN 309, 2003). **Medium (2)** economic impact.	**Medium (2)**

Evidence	Risk Value
Ceratitis capitata *Ceratitis capitata* is one of the world's most destructive fruit pests (Weems, 1981). Because of its wide distribution, ability to tolerate colder climates compared with most other fruit flies, and its wide host range, it is ranked as the most important among economically important fruit flies (Weems,1981;CABI, 2002). It may also transmit fruit-rotting fungi (CABI, 2002). The species is of quarantine significance throughout the world, especially for Japan and the United States. Its presence can lead to severe additional constraints for export of fruits to uninfested areas in other parts of the world. In this respect, *C. capitata* is one of the most significant quarantine pests for any tropical or warm temperate areas in which it is not yet established (CABI, 2002). Based on this evidence, *C. capitata* is given a rating of **High (3)** for the Economic Impact risk element.	**High (3)**

2.7.5 Environmental Impact

The potential assessment of every pest to cause environmental damage is considered by evaluating the following factors:

- It is expected that the pest introduction causes direct and important impacts in the environment, for example ecological disruptions and biodiversity reduction. When it is used inside the National Environment Policy Minutes context (7CFR §372), its importance is qualitative and involves the possibility and the severity of an environment impact.

- It is expected that the pest has a direct impact on the listed species by the Federal Agency putting in danger and threatening it (50CFR §17.11 and §17.12 (U.S. Fish and Wildlife Serv. 2004)). If the pest affects other species inside the genus or other genus inside the family and preference/not-preference tests have been carried out with listed plants and the pest, then the species is considered a host.

- It is expected that the pest provoke indirect impacts on the listed species by the Federal Agency, threatening it with change the critical and sensible habitat.

- The pest introduction could estimulate the chemical or biological control plans adoption.

Evidence	Risk Value
Rhagoletis tomatis *R. tomatis* is a monophagous pest of *Lycopersicon esculentum* (SAG, 1987, 1989, 2002a**).** The introduction of *R. tomatis* would stimulate chemical or biological control programs in the United States until it was erradicated. Therefore, the risk of *Rhagoletis tomatis is* **Medium (2)**.	**Medium (2)**

Evidence	Risk Value
Tuta absoluta *Tuta absoluta* only affects plants of the Solanaceae family (CABI, 2002). In Chile, three species are considered weeds (*Datura stramonium, Solanum nigrum* and *Solanum tomatillo*). *Tuta absoluta* attacks two crops that have economical importance, *Lycopersicon esculentum* and *Nicotiana tabacum* (CABI, 2002). There are four Solanaceae species and two proposed species that are threatened and endangered species in Hawaii (U.S. Fish and Wildlife Serv. 2004). Also, it's introduction could stimulate biological control programs. The conclusion is that *Tuta absoluta* has a **High (3)** environment impact risk.	**High (3)**
Liriomyza huidobrensis *Liriomyza huidobrensis* introduction could stimulate biological control programs in the United States. The United States has several species in the *Liriomyza* genus, including *L. brassicae, L. sativae, L. trifolii*, and *L. langei*, which may occupy similar ecological niches as *L. huidobrensis* (CABI, 2002). However, the true effects of *L. huidobrensis* are not known. *L. huidobrensis* is a generalist and feeds on several genera in several families, including Cucurbitaceae and Solanaceae (CABI, 2002). Both families have species of economic importance and threatened and endangered species (U.S. Fish and Wildlife Serv., 2004). All the above means a **High (3)** rating for the economic impact risk element.	**High (3)**
Ceratitis capitata *Ceratitis capitata* is one of the world's most destructive fruit pests (Weems, 1981). Because of its wide distribution, ability to tolerate colder climates compared with most other fruit flies, and its wide host range, it is ranked as the most important among economically important fruit flies **(**Weems, 1981;CABI, 2003**)**. The species is of quarantine significance throughout the world, especially for Japan and the United States. Its presence can lead to severe additional constraints for export of fruits to uninfested areas in other parts of the world. Its broad host range predisposes this species to attack plants in the U.S. listed as Threatened or Endangered in 50 CFR §17.12 (U.S. Fish and Wildlife Serv. 2004). As it represents a significant economic threat, the wider establishment of *C. capitata* in the U.S. undoubtedly would trigger the initiation of chemical or biological control programs, as has occurred in California and Hawaii. In this respect, *C. capitata* is one of the most significant quarantine pests for any tropical or warm temperate areas in which it is not yet established (CABI, 2002). Based on this evidence, *C. capitata* is given a rating of **High (3)** for the Economic Impact risk element.	**High (3)**

Table 5. Risk Classification by the Consequence of an Introduction (risk elements # 1-5)

Pest	Risk element 1 Climate/Host Interaction.	Risk element 2 Host Range	Risk element 3 Dispersal Potential	Risk element 4 Economic Impact	Risk element 5 Environment Impact	**Accumulated Risk Classification**
Rhagoletis tomatis	Medium (2)	Low (1)	High (3)	High (3)	Medium (2)	**Medium (11)**
Tuta absoluta	Medium (2)	Medium (2)	High (3)	High (3)	High (3)	**High (13)**
Liriomyza huidobrensis	Medium (2)	High (3)	Medium (2)	Medium (2)	High (3)	**Medium (12)**
Ceratitis capitata	High (3)	High (3)	High (3)	High (3)	High (3)	**High (15)**
Accumulated: Low= 5 to 8; Medium= 9 to 12; High= 13 to 15						

2.8. Likelihood of Introduction

Each pest is rated with respect to introduction potential (i.e., entry and establishment). Two separate components are considered. First, we estimate the amount of commodity likely to be imported. It is assumed that risk is proportional to the volume of imports since increased volume results increases the number of opportunities for pest introductions. The result is a risk rating that applies to the commodity and country in question and is the same for all quarantine pests considered. Second, we consider five biological features (i.e., sub-elements- climate/host interaction, host range, dispersal potential, economic impact, and environmental impact) concerning the pest and its interactions with the commodity. The resulting risk ratings are specific to each pest. Details of elements and rating criteria are provided in the previous tables (USDA, 2000). For each pest, the sum of the sub-elements produces a cumulative risk rating for likelihood of introduction. The cumulative risk rating for introduction is considered to be an indicator of the likelihood that a particular pest would be introduced. These ratings and the value for the Likelihood of Introduction are summarized in **Table 6**.

2.9 Pest Opportunity (Survival and Access to Suitable Habitat and Hosts).

2.9.1 Quantity of commodity imported annually

During 2000-2001, 9,030 tomato boxes were exported to the United States (4.5 *containers*) and during 1999-2000, 32,853 boxes were exported (16.4 *containers*) **(**Chile Preclearance Program, 1999-2001). The projected export of tomatoes is estimated to be 120,000 boxes (60 *containers)* per year, which constitutes a risk rating for quantity imported of **Medium (2)**.

2.9.2 Survive post harvest treatments

The tomato fruits are packaged by manual or mechanical means. Fruit that does not meet the phytosanitary or quality requirements is removed during the packaging procedures. Any tomato that has

insect damage is discarded. This damage may be, but is not limited to, holes, frass, or insect presence, (dead or alive).

The tomatoes are brushed clean. They are then waxed to avoid moisture loss. Mature tomatoes are stored at temperatures varying between 6 and 12°C for 15 days (Castro, D. 2003)

Evidence	Rating
Rhagoletis tomatis ***Ceratitis capitata*** Among the arthropod pests, both Tephritidae fruit flies (*Rhagoletis tomatis* and *Ceratitis capitata*), as internal feeders, would be expected to survive these post-harvest treatments, especially if the damage caused by the larvae was not obvious during the packing process. Fruit attacked by fruit flies can show signs of oviposition punctures; however, "these, or any other symptoms of damage, are often difficult to detect in the early stages of infestation" (CABI, 2002).	**High (3)**
Tuta absoluta The tomato fruits infested with *Tuta absoluta* larvae are easily recognizable by the exit holes, produced by the last instar larvae to pupate, and the dried frass around the exit holes (Estay, 2001). Fruit that has these symptoms is easily culled during the packing process. These symptoms increase the chance of infested fruit being culled during post-harvest processing (as well as collected during harvest). Based on this evidence, it is theorized that only fruit infested by early instar larvae would go undetected and survive the post-harvest treatments. Since early instars are not easily detected during inspection of the fruit because visible fruit damage is minimal, the pest is given a **Medium (2)** risk.	**Medium (2)**
Liriomyza huidobrensis The damage caused by *L. huidobrensis* is primarily in the leaves or in the peduncles of tomato clusters (CABI, 2002). The mines are easy to recognize. However, *L. huidobrensis* pupae are often found stuck to the tomato near the calyx (**Appendix V,** PIN 309, 2005). The pupae are often seen during inspection of the fruit so the risk for this pest is **Low (1)**.	**Low (1)**

2.9.3 Survive during shipment

This subelement assesses pest mortality during the tomato movement from Chile to the U.S.A. Tomatoes are transported in cold storage trucks at low temperatures (6 to 12ºC) from the packing house to the airport. Tomatoes are not refrigerated during air shipment because they are fumigated upon arrival in the United States.

Evidence	Risk Value
Rhagoletis tomatis* and *Tuta absoluta Based on the previous discussions throughout this document, it has been shown that the eggs and early instar larvae of both *R. tomatis* and *T. absoluta* are able to survive the standard culling and shipping method. Therefore, the risk of survival during shipment is **High (3)**.	**High (3)**
Ceratitis capitata It is assumed that at least some of the larvae and eggs of *C. capitata* would be expected to survive the standard shipping method because the larvae and eggs are inside the fruit and, therefore, protected somewhat from temperatures and culling practices (**Appendix V,** PIN 309, 2003). Since these fruit flies have the ability to survive the transport conditions, the risk is **High (3)**.	**High (3)**
Liriomyza huidobrensis *Liriomyza huidobrensis* pupae have been intercepted by PPQ at ports of entry with tomatoes in cargo (**Appendix V,** PIN 309, 2003), which is evidence that at least a small percentage of these leaf miners have the ability to survive the transport conditions of tomatoes. Therefore, it is assumed that these insects will be able to survive the transport under current regulations, indicating a **High (3)** risk level.	**High (3)**

2.9.4 Not detected at the port of entry

Unless specific protocols are required at port of entry, we assume that standard inspection protocols (e.g., visual inspection) are employed.

Evidence	Rating
Rhagoletis tomatis* and *Ceratitis capitata The eggs and larvae of the fruit flies (*Ceratitis capitata* and *Rhagoletis tomatis*) are borne internally and, therefore, would be difficult to detect by officers at the port of arrival, especially if infestation of the fruit was not at the level that external fruit damage was obvious. Fruit fly-infested fruit can go unrecognized (White and Elson-Harris, 1992). The fruit can show signs of oviposition punctures; however, these are often difficult to detect in the early stages of infestation (CABI, 2002). The fruit flies may easily go undetected even if the fruit is dissected. Therefore, the risk of being not detected in the port of entry is considered **High (3)**.	**High (3)**

Evidence	Rating
Tuta absoluta *Tuta absoluta*, an internal feeder, similarly could evade detection in fruit if the infestation is relatively recent. In addition, tomatoes from Chile were initially prohibited due to this pest, which indicates that inspection alone is not an adequate treatment for it (USDA, Decision on entry status of fruits and vegetables under quarantine N° 56, Nov, 1981). However, because of the relatively obvious symptoms created by the larvae, once it has reached later instars, fruit infested by *T. absoluta* are probably slightly easier to detect than fruit infested by the fruit flies. The risk of being not detected in the port of entry is considered **Medium (2)**.	**Medium (2)**
Liriomyza huidobrensis *Liriomyza huidobrensis* pupae are often intercepted by PPQ at ports of entry on tomatoes in cargo (**Appendix V,** PIN 309, 2005). Since the pupae are extern generally visible during an inspection (PIN 309, 2005), the detection risk in ports of entry are considered **Low (1)**.	**Low (1)**

2.9.5 Imported or moved subsequently to an area with an environment suitable for survival

This subelement considers the geographical location of likely markets and the chance of the commodity to move to locations suitable for the pest's survival. Fruit that arrives in the United States does not normally arrive at a single port, and instead, it is distributed according to market demand. Demographics derived from United States Census data may be useful in predicting the distribution of imported tomato fruit by indicating population centers where the demand may be greatest. Three of the four most populous states in the United States (Florida, Texas, and California) are in the southern tier of states where the climate most closely resembles the native climates for the pests analyzed (USDA-NASS. 1997, Skarratt, *et al*, 1995). These three States account for approximately 25 percent of the total U.S. population (USDA-NASS. 1997). If we assume that Chilean tomatoes are distributed proportionally across the United States according to population, the rating for all the pests for this sub-element is **High (3).**

2.9.6 Come into contact with host commodity suitable for reproduction

Even if the final destination of infested commodities is suitable for pest survival, suitable hosts must be available in order for the pest to survive. This sub-element considers the likelihood that the pest species come in contact with host material for reproduction. The complete host range of the pest should be considered. According to the FAO standard for pest risk analysis (FAO, 2001), other factors that may considered are:

- Dispersal mechanisms, including vectors to allow movement from the pathway to a suitable host;
- Whether the imported commodity is to be sent to a few or many destination points in the PRA area;

- Proximity of entry, transit and destination points to suitable hosts;
- Time of year at which import takes place;
- Intended use of the commodity (e.g. for planting, processing and consumption);
- Risks from by-products and waste.

Evidence	Risk
Rhagoletis tomatis The primary host of *Rhagoletis tomatis* is *Lycopersicon esculentum*. Tomatoes from Chile are imported for consumption. Chile's tomato production is during the United States winter months, so the potential of *R. tomatis* to find a suitable host in colder U.S. states, is low. However, the potential to find a suitable host in a warmer state, such as Florida, Texas, or California, where tomatoes are grown for consumption still exists. Therefore, it is concluded that the risk of finding a suitable host is **Medium (2)**.	**Medium (2)**
Ceratitis capitata* and *Liriomyza huidobrensis Hosts of the extremely polyphagous species, such as *Ceratitis capitata* and *Liriomyza huidobrensis,* include temperate-zone or widely cultivated plants (USDA-NRCS, 2002; USDA-NASS, 1997), and should be available throughout the potential range. Suitable hosts would be available throughout this shipping season in the southern States and would be available during most of the shipping season in the rest of the United States. The dispersal ability of these pests is described under "Dispersal Potential" in the "Consequences of Introduction" section above. *Ceratitis capitata* can fly 20 km or more (Fletcher, 1989). Both of the pests were given a **High (3)** rating for potential to come in contact with host commodity suitable for reproduction.	**High (3)**
Tuta absoluta *Tuta absoluta* only affects plants of the Solanaceae family. There are four Solanaceae species and two species that are threatened and endangered species in Hawaii that could be potential hosts for *T. absoluta* (US, Fish and Wildlife Service, 2004). Three species that are hosts for *T. absoluta* are considered weeds (*Datura stramonium*, *Solanum nigrum*, and *Solanum tomatillo*) (CABI, 2003). *Tuta absoluta* attacks two crops that have economical importance, *Lycopersicon esculentum* and *Nicotiana tabacum* (CABI, 2003). The conclusion is that *Tuta absoluta* has a **High (3)** risk of finding a suitable host.	**High (3)**

Table 6. Risk Rating for Likelihood of Introduction (risk element # 6)

Pest	Sublement 1 Quantity imported annually	Subelement 2 Survive post-harvest treatments	Subelement 3 Survive shipment	Subelement 4 No detection at the port of entry	Subelement 5 Moved to suitable habitat	Subelement 6 Contact with host material	**Cumulative Risk Classification**
Rhagoletis tomatis	Medium (2)	High (3)	High (3)	High (3)	High (3)	Medium (2)	**High (16)**
Tuta absoluta	Medium (2)	Medium (2)	High (3)	Medium (2)	High (3)	High (3)	**High (15)**
Liriomyza huidobrensis	Medium (2)	Low (1)	High (3)	Low (1)	High (3)	High (3)	**Medium (13)**
Ceratitis capitata	Medium (2)	High (3)	High (3)	High (3)	High (3)	High (3)	**High (17)**
Low= 6-9 Medium= 10-14 High= 15-18							

2.9.7 Pest Risk Potential: Conclusion

Table 7. Pest Risk Potential

Pest	Introduction consequences Accumulated Risk classification	Introduction Probability Accumulated Risk classification	Pest Risk Potential
Rhagoletis tomatis	**Medium (11)**	**High (16)**	**High (27)**
Tuta absoluta	**High (13)**	**High (15)**	**High (28)**
Liriomyza huidobrensis	**Medium (12)**	**Medium (13)**	**Medium (25)**
Ceratitis capitata	**High (15)**	**High (17)**	**High (32)**
Low= 11-18 Medium= 19-26 High= 27-33			

According to this assessment, it can be concluded that *Liriomyza huidobrensis* (Blanchard) (Diptera: Agromyzidae) has a pest Risk Potential of **Medium**, indicating that specific phytosanitary measures may be necessary, under the Guidelines for Pathway Initiated Pest Risk Assessment (USDA, 2000).

Tuta absoluta Meyrick (Lepidoptera: Gelechiidae), *Rhagoletis tomatis* Foote (Diptera: Tephritidae), and *Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae) have a Pest Risk Potential of **High**, indicating that specific phytosanitary measures are strongly recommended to mitigate its risk, under the Guidelines for

Pathway Initiated Pest Risk Assessment (USDA, 2000). Port of entry inspections are not sufficient to provide phytosanitary security.

3. Risk Management

3.1 Introduction

The pest risks identified in this risk assessment represent a baseline risk associated with the unmitigated importation of tomatoes from Chile. The importation of tomatoes from Chile are currently under regulated 7 CFR § 319.56-2dd (d) (U.S. Federal Register, 1997). The mitigations described in 7 CFR § 319.56-2dd (d) (U.S. Federal Register, 1997) require a mandatory fumigation for *Rhagoletis tomatis* and *Tuta absoluta.* In this document, we are assessing the use of a Systems Approach for Chilean tomatoes.

The Plant Protection Act of 2000 (SEC. 401. 7 U.S.C. 7701) defines "Systems Approach" as "…a defined set of phytosanitary procedures, at least two of which have an independent effect in mitigating pest risk associated with the movement of commodities." The FAO Standard for Integrated Measures for Pest Risk Management proposed a definition in June 2002 of a Systems Approach as, "The integration of different pest risk management measures, at least two of which act independently, and which cumulatively achieve the desired level of phytosanitary protection." (FAO, 2001). Pest risk management is the decision-making process of reducing the risk of introduction of a quarantine pest (FAO, 1996). Systems Approaches are employed by an importing country as an alternative to the use of single measures that achieve an appropriate level of phytosanitary protection when a single phytosanitary measure is nonexistent, infeasible or undesirable. The combinations of specific mitigation measures that provide overlapping or sequential safeguards are distinctly different from single mitigation methodologies such as fumigation or inspection. Systems Approaches vary in complexity, however, they all require the integration of different measures, at least two of which act independently, with a cumulative effect and are often tailored to specific commodity-pest-origin combinations. Options for specific measures may be selected from a range of pre-harvest and post-harvest measures (e.g., surveys, inspections, sanitation, chemical treatments, etc) and include mitigation measures to compensate for uncertainty. PPQ uses systems approaches for the importation of many commodities including Unshu oranges from Japan (7 CFR § 319.28, U.S. Federal Register, 1997), tomatoes from Spain, France, Morocco, and Western Sahara (7 CFR § 319.56-2dd, U.S. Federal Register, 1997), and peppers from Israel (7 CFR § 319.56-2u U.S. Federal Register, 1997). These programs have performed successfully for many years. The phytosanitary measures required by 7 CFR § 319.56-2dd (U.S. Federal Register, 1997) for greenhouse grown tomatoes from Spain, France, Morocco, and West Sahara for importation into the United States includes: fruit fly trapping protocols, poor host status, and inspection.

3.2 Phytosanitary measures for the requested systems approach to allow tomatoes from Chile to enter the United States in lieu of treatment:

1) Medfly currently occurs in portions of Chile and is a quarantine pest in the United States. Trapping must occur in the regions that it occurs. The trapping protocol for the detection of Medfly in infested areas is as follows:

Inside the greenhouses: McPhail traps, with an approved protein bait, must be placed inside the greenhouses at a density of 4 traps/ha, with a minimum of at least 2 traps/greenhouse. Traps must be serviced on a weekly basis.

Surrounding the production site: Medfly traps with trimedlure must be placed inside a buffer area 500 meters wide around the registered production site at a density of 1 trap per 10 ha for a total of at least 10 traps. These traps must be checked at least every seven days. At least one of these traps needs to be near a greenhouse. Trapping must begin at least two months before export and continue to the end of the harvest.

Medfly prevalence levels of 0.7 fly per trap per week (F/T/W) or lower must be maintained for two months before harvest and continuing through to the end of the harvest. If the F/T/W meets or exceeds 0.7 before harvest, the production site will be prohibited from exporting. If the F/T/W meets or exceeds 0.7 after the two months prior to harvest, SAG will immediately cancel export to the United States from that production site until SAG and APHIS can agree that the risk has been mitigated. APHIS will be notified of each cancellation and reinstatement.

2) Tomatoes must be grown in approved production sites. Initial approval of the production sites will be completed jointly by SAG and APHIS. SAG will visit and inspect the production sites monthly, starting two months before harvest and continuing through the end of the shipping season. APHIS can monitor the production sites anytime from two months before harvest and continuing through to the end of the harvest.

3.) SAG will ensure that populations of *Liriomyza huidobrensis* inside greenhouses are kept to low levels by conducting monthly inspections specifically for *L. huidobrensis* leaf mines and visible external pupae or adults. High numbers of *L. huidobrensis* will result in immediately cancellation of exports from that production site until APHIS and SAG determine that risk mitigation is achieved.

4.) Tomato production sites must consist of a pest exclusionary greenhouse, which must have self-closing double doors, and all openings, including vents, should be covered by screening with a mesh opening of 1.6mm or less.

5.) For the detection of *Rhagoletis tomatis* in the areas surrounding and inside the greenhouse:

McPhail traps, with an approved protein bait, must be placed inside a buffer area 500 meters wide surrounding the registered greenhouses at a density of 1 traps/ 10 ha for a total of at least 10 traps. At least one of these traps needs to be near a greenhouse. Traps must be serviced on a every seven days. Traps must be set for at least two months before export and continue to the end of the harvest.

Inside the greenhouses: McPhail traps, with an approved protein bait, must be placed inside the greenhouses at a density of 4 traps/ha, with a minimum of at least 2 traps/greenhouse. Traps must be serviced on a weekly basis.

6.) Detection inside the tomato production site, within a 30 day period, of: a) one *Rhagoletis tomatis* or, two *Tuta absoluta* inside the greenhouse, c) one *Tuta absoluta* found inside the fruit, d) or either pest detected in a shipment, within 30 days, will result in the immediate cancellation of exports from that production site until APHIS and SAG determine that risk mitigation is achieved.

7.) Capture or detection of two *Rhagoletis tomatis* within the buffer zone within a 30 day period will result in the immediate the canceling of export from that production area until evaluated and rectified by SAG and APHIS.

8.) SAG must maintain records of trap placement, trap servicing, and any *Rhagoletis tomatis* or *Tuta absoluta* captures. SAG must maintain an APHIS approved quality control program to monitor or audit the trapping program. The trapping records must be maintained for one year for APHIS review.

9.) The tomatoes must be packed within 24 hours of harvest in a pest exclusionary packing house. The tomatoes must be safeguarded by a pest-proof screen or plastic tarpaulin while in transit to the packing house and while awaiting packing. They must be packed in pest proof containers for shipment to the United States.

10.) While packing fruit for export to the United States, the packing house may only accept fruit from registered approved production sites.

11.) SAG is responsible for export certification inspection and issuance of phytosanitary certificates. Each shipment of tomatoes must be accompanied by a phytosanitary certificate issued by SAG and bearing the declaration, "These tomatoes were grown in an approved production site in Chile." The shipping box must be labeled with the identity of the production site.

3.3 Historical Performance of Tomatoes Grown Using a Systems Approach

Current quarantine regulations 7 CFR§319.56-2dd (U.S. Federal Register, 1997) allow for tomatoes from Spain, France, and Morocco to be imported into the United States in accordance with systems approach measures similar to those described in Section B.

There are 230 greenhouses currently using systems approaches for tomatoes in Spain. The number of greenhouses in France is unknown. Morocco has not shipped tomatoes since 2001, but at one time Morocco had almost 20 small greenhouses in the program. West Sahara has never shipped tomatoes to the United States. The results of port of entry pest inspections, which occurred after the initiation of a systems approach for Spanish and French tomatoes, are shown in the following table.

	Spain	**France**
Start of the program	**August 25, 1994**	**July 22, 1998**
Total shipment numbers	**7543**	**68**
Pest interceptions	**Pest numbers**	**Pest numbers**
Agromyzidae (Diptera)	**14**	**1**
***Cladosporium* sp.**	**1**	**0**
***Macrolophus* sp. (Heteroptera: Miridae)**	**1**	**3**
***Theba pisana* (Mollusca: Helicidae)**	**1**	**0**
Phlaeothripidae (Thysanoptera)	**5**	**0**
Miridae sp. (Heteroptera)	**10**	**0**

***Hylastes cunicularius* (Coleoptera: Scolytidae)**	**1**	**0**
Total Pest interceptions	**34**	**4**
Approx. Infestation Rate	**0.005%**	**0.06%**

Since the start of the tomato systems approaches in Spain and France, the pest interceptions have been very low (**Appendix V,** PIN 309, 2003). The pests that were intercepted on tomatoes were generally very small, such as Agromyzidaes and nymphal Miridaes. The small size of these insects allowed them to fit though the greenhouse screening. In order to eliminate all insects from entering the greenhouses through the screening the screen size would have to be 0.2 mm or smaller. Smaller screen sizes create additional problems in greenhouses, such as increased heat and fungal problems as a result of reduced air flow. However, the standard screen size of 1.6 mm for tomato greenhouses effectively excludes larger insects, such as fruit flies and moths. The screening effectiveness is demonstrated by the low numbers of interceptions and the absence of interceptions on larger inspections.

3.4 Evidence for the Effective Removal of Pests of Concern from the Pathway

Based on their characteristics, i.e., respective biologies, methods of dispersal and ability to be detected, APHIS believes that the phytosanitary measures within the proposed system approach outlined above will result in the effective removal of the four pests of concern identified by the risk assessment from the tomatoes from Chile pathway. The FAO (1996) defines pathway as "Any means that allows the entry or spread of a pest." The following paragraphs present the evidence APHIS used to determine that the measures required would effectively remove pests of concern from the Chilean tomato pathway.

3.4.1 *Ceratitis capitata*

The eggs and larvae of *Ceratitis capitata* are borne internally and, therefore, would be difficult to detect by officers at the port of arrival, especially if infestation of the fruit was not of such great age that damage was obvious. Fruit fly-infested fruit can go unrecognized (White and Elson-Harris ,1992). The fruit can show signs of oviposition punctures; however, these are often difficult to detect in the early stages of infestation (CABI, 2002). The fruit flies may easily go undetected even if the fruit is dissected. *Ceratitis capitata* females may deposit up to 22 eggs per day and as many as 800 eggs in a lifetime, although 300 is the more typical number (Weems, 1981). Eggs are inserted into host fruit in small batches of one to ten (Weems, 1981). In Australia, breeding is continuous throughout the year, the species exhibiting several overlapping generations (Hassan, 1977). Adult flight, with a range of 20 km or more (Fletcher, 1989), and the transport of infested fruits are the major means by which this fruit fly is able to move and disperse to previously uninfested areas (CABI, 2002). Since 1985, *Ceratitis capitata* has been intercepted 2,366 times by PPQ at ports of entry, the majority of which were with fruit (PIN 309,2003), which is evidence of this species' ability to be transported long distances with infested fruit. This species may also be dispersed via pupae in soil or growing medium accompanying plants (CABI, 2002). Since *Ceratitis capitata* have high fecundity rates, are polyphagous, and are difficult to inspect for, mitigation measures must be used to effectively eliminate the pest from the pathway. Specific requirements (see **B. Phytosanitary measures for the requested systems approach to allow tomatoes from Chile to enter the United States in lieu of treatment**) that mitigate the risk of *C. capitata include*:

Measure[1]	Evidence
Pest Exclusionary Greenhouse Measure 2,4	The greenhouse enclosure with its automatic double doors, screen covering, and screened vents provides a physical barrier to plants' exposure to insects from outside (Ghidiu and Roberts, 2003). Greenhouses must be equipped with self-closing doors and screening with a mesh opening no larger than 1.6 mm to effectively eliminate the risk of *C. capitata* infestation. *C. capitata* adults are too large to fit through this size of greenhouse screening. The oviposition site is difficult to detect (Frias et al. 1991), so the fly must be excluded from the greenhouse in order to prevent oviposition. Greenhouse doors and screening must be properly maintained to ensure no possibility of entrance by *C. capitata*. Greenhouse structures are a very effective way of eliminating fruit flies from the pathway (Kahn and Mathur, 1999). (see **C. Historical Performance of Tomatoes Grown Using a Systems Approach.)**
Fruit fly trapping protocol Measure 2, 5, 6, 7, 8	*Ceratitis capitata* trapping must be conducted both inside the greenhouse and in a buffer area surrounding the greenhouse. Trapping detects the presence of *C. capitata*. Due to *C. capitata's* ability to reproduce throughout the year (Frias, et. al., 1991), trapping protocols must be maintained throughout the growing season.
Protection of fruit for export Measure 2, 9,10, 11	The eggs of C. capitata are laid below the skin of the host fruit (CABI, 2003). The transport of infested fruits is the major means of movement and dispersal to previously uninfested areas (CABI, 2003). Some host fruits are only infested when ripe (CABI, 2003). Tomatoes must be packed within 24 hours of harvest in a pest exclusionary house and must be safeguarded by a tarpaulin or screen during

	transit so infestation of harvested fruit is unlikely. The packing and shipping methods will also deter additional pests that may hitch-hike with the shipment.

[1] see **B. General Program Requirements for tomatoes for consumption from Chile.**

3.4.2 *Liriomyza huidobrensis*

Liriomyza huidobrensis (Blanchard) is native in Central and South America but has been detected in several other countries, including central and eastern Europe. *Liriomyza huidobrensis* has been recorded from Florida (CABI, 2002), but recently the *Liriomyza* species of the United States was redefined taxonomically and *L. huidobrensis* was not found to occur in the United States (Scheffer *et. al*, 2001; Scheffer and Lewis, 2001). *L. huidobrensis* is highly polyphagous (CABI, 2002). Their hosts include 15 families, including members of the Solanaceae family, but there appears to be no clear preference for any particular family (CABI, 2002). As a leaf-miner, *L. huidobrensis* feeding punctures cause the destruction of leaves. In addition, they are thought to be vectors to many plant diseases (CABI, 2002). *L. huidobrensis* is capable of surviving a large climatic range (super cooling point of -19.55 ^{o}C and a freezing point of -18.7 ^{o}C) and has been found at elevations of up to 3000m (CABI, 2002). L. *huidobrensis* can pupate either internally inside the leaf, externally in the soil or on other substances, such as the fruit or calyx (CABI, 2002). *L. huidobrensis* can follow the pathway of commodities comprising of whole plants, leaves, fruits, such as tomatoes, and seedlings (CABI, 2002; PIN 309, 2003). Specific requirements (see **B. Phytosanitary measures for the requested systems approach to allow tomatoes from Chile to enter the United States in lieu of treatment**) that mitigate the risk of *L. huidobrensis* include:

Measure[1]	**Evidence**
Monthly inspections by SAG Measure 3	SAG must perform regular inspections on the tomato plants, where they are looking specifically for *L. huidobrensis. L. huidobrensis'* mines inside the leaves are easily seen with the naked eye (CABI, 2002). *L. huidobrensis* larvae frequently mine along the midribs of leaves, and late instar larvae are almost always found mining the lower surfaces of leaves or within petioles (Steck, 1999). Regular inspections are recognized by APHIS and many plant protection organizations as an important part of a pest management program (Kahn and Mathur, 1999).

Measure[1]	**Evidence**
Pest Exclusionary Greenhouse Measure 3, 4	The greenhouse enclosure with its automatic double doors, screen covering, and screened vents provides a physical barrier to plants' exposure to insects from outside (Ghidiu and Roberts, 2003). Tomatoes will be grown for export solely in a greenhouse in which proper pest deterrent measures are taken. The greenhouse enclosure with its automatic double doors, screen covering, and screened vents provides a physical barrier to plants' exposure to insects from outside(Kahn and Mathur, 1999). Adult *L. huidobrensis* are 1.5 to 2.0 mm long (Steck, 1999). Greenhouse screen size of 1.6mm may deter the some of the larger adults from entering the greenhouse (Steck, 1999). However, greenhouse structure and screen size are the least effective risk mitigation measure for *L. huidobrensis* since they routinely follow the pathway in other countries' tomato imports (see **C. Historical Performance of Tomatoes Grown Using a Systems Approach**). Therefore, greenhouse structures cannot be used as a stand alone measure.

Measure[1]	Evidence
SAG and APHIS Inspection of Shipments for *L. huidobrensis* Measure 9, 10, 11	*L. huidobrensis* pupation is greatly affected by high humidity, temperature and drought (CABI, 2002). However, under most conditions, *L. huidobrensis* can have several generations a year (CABI, 2002). Although, *L. huidobrensis* development is dependant on leaves; the larvae often migrate from the leaves to pupate (CABI, 2002). After exiting the leaves, the pupae become stuck to whatever it encounters, including the calyx and fruit, and pupate at that location (CABI, 2002; Miller, pers. commun. 2003, PIN 309, 2005). In this way, *L. huidobrensis* can follow the pathway. Since *L. huidobrensis* can reproduce all year and can travel through the pathway, inspection for *L. huidobrensis* must continue for the entire growing season and the entire tomato fruit and stem must be carefully inspected for pupae. Inspection is an effective mitigation measure and this is demonstrated by the large number of interceptions of Agromyzidae found in tomato fruit shipments from all over the world (PIN 309, 2005).

[1] see **B. Phytosanitary measures for the requested systems approach to allow tomatoes from Chile to enter the United States in lieu of treatment.**

3.4.3 *Rhagoletis tomatis*

Rhagoletis tomatis (Foote) is a South American fruit fly that attacks tomatoes (*Lycopersicon esculentum)* and possibly has additional native hosts that can sustain reservoir populations (Foote, 1981; White and Elson-Harris, 1992). *R. tomatis* females oviposit most often into small (2-4.4 cm diameter) unripe fruits (Frias, 1995, Frias, et al., 1991). After ovipositing, the females deposit a pheromone near the puncture that is attractive to other females (Frias, et al., 1991). The life cycle from egg to adult is approximately 52 days. *R. tomatis* can have at least five to six generations a year (Frias et al., 1991). *R. tomatis*' body size is approximately 5-6 mm long and the thorax is approximately 1.5 mm wide x 2 mm deep (Norrbom, pers. comm., 2003). *R. tomatis* can follow the pathway of commodities as an internal fruit feeder (Frias, 1995; Frias, et al. 1991). Specific requirements (see **B. Phytosanitary measures for the requested systems approach to allow tomatoes from Chile to enter the United States in lieu of treatment**) that mitigate the risk of *R. tomatis* include:

Measure[1]	Evidence
Pest Exclusionary Greenhouse Measure 2,4	The greenhouse enclosure with its automatic double doors, screen covering, and screened vents provides a physical barrier to plants' exposure to insects from outside (Ghidiu and Roberts, 2003). Greenhouses must be equipped with self-closing doors and screening with a mesh opening no larger than 1.6 mm to effectively eliminate the risk of *R. tomatis* infestation. *R. tomatis* adults are too large to fit through this size of greenhouse screening (Norrbom, pers. comm., 2003). The oviposition site is difficult to detect (Frias et al. 1991), so the fly must be excluded from the greenhouse in order to prevent oviposition. The greenhouse structure prevents the entrance of the fly. Greenhouse doors and screening must be properly maintained to ensure no possibility of entrance by *R. tomatis*. Greenhouse structures are a very effective way of eliminating fruit flies from the pathway (Kahn and Mathur, 1999). (see **C. Historical Performance of Tomatoes Grown Using a Systems Approach.)**
Fruit fly trapping protocol Measure 2, 5, 6, 7, 8	*Rhagoletis tomatis* trapping must be conducted both inside the greenhouse and in a buffer area surrounding the greenhouse. *R. tomatis* females oviposit gregariously into unripened fruit. The life cycle from egg to adult is 52 days (Frias, et al., 1991). *R. tomatis* can have five to six generations per year (Frias, et al, 1991). Trapping detects the presence of *R. tomatis*. Due to *R. tomatis*' ability to reproduce throughout the year (Frias, et. al., 1991), trapping protocols must be maintained throughout the growing season.

Measure[1]	Evidence
Protection of fruit for export Measure 2, 9,10, 11	*R. tomatis* females prefer to oviposit in small unripe fruits (2 - 4.4 cm in diameter) (Frias, et al. 1991). The tomatoes picked for export will be significantly larger than what *R. tomatis* females prefer to oviposit in (Frias, et. al., 1991) so infestation of harvested tomatoes are unlikely to occur. Tomatoes must be packed within 24 hours of harvest in a pest exclusionary house and must be safeguarded by a tarpaulin or screen during transit so infestation of harvested fruit is unlikely. The packing and shipping methods will also deter additional pests that may hitch-hike with the shipment. Since *R. tomatis* prefer to oviposit on small fruits, mitigation measures, including pest exclusionary greenhouses, must be used during the entire tomato fruit growing season.

[1] see **B. General Program Requirements for tomatoes for consumption from Chile.**

3.4.4 *Tuta absoluta*

T. absoluta (Meyr.) is native to Peru and has a primarily South American distribution (CABI, 2002). *Tuta absoluta* feeds almost exclusively on tomatoes (CABI, 2002) and other members of the Solanaceae family (CABI, 2002), including potato. *T. absoluta* can cause losses of 50-100 percent in tomato crops (CABI, 2002). *T. absoluta* attacks all stages of the crop from the seedling stage onward (Scardini et al., 1982). However, *T. absoluta* prefer apical buds, flowers, or new fruits (CABI, 2002). The *T. absoluta* female emits a powerful pheromone to attract mates and lays about 260 eggs, 30-40 a day, in her lifetime (CABI, 2002). The female oviposits eggs singly into small (3 - 4 cm) unripe fruits. The larvae have four instars that last approximately 20 days (CABI, 2002). Specific requirements (see **B. General Program Requirements for tomatoes for consumption from Chile**) that mitigate the risk of *T. absoluta* include:

Measure[1]	Evidence
Pest Exclusionary Greenhouse Measure 2, 4	The greenhouse enclosure with its automatic double doors, screen covering, and screened vents provides a physical barrier to plants' exposure to insects from outside (Ghidiu and Roberts, 2003). Greenhouses must be equipped with screening with a mesh opening of no larger than 1.6 mm to effectively eliminate the risk of *T. absoluta* infestation. *T. absoluta* adults are too large to fit through the greenhouse screening (Brown, pers. comm. 2003). The wing expanse for males is 8.8 – 9.7 mm (Brown, pers. comm. 2003). The females' wing expanse is 11.0 – 11.3 mm (Brown, pers. comm. 2003). Properly maintained greenhouse facilities, that contain properly maintained screening and double doors, effectively remove *T. absoluta* from the pathway.

Measure[1]	Evidence
SAG Inspection methods for *T. absoluta* Measure 6, 8	The female *T. absoluta* releases a powerful pheromone that can lure males from long distances (CABI, 2002). Since luring *T. absoluta* to tomato production areas is not desirable, trapping for *T. absoluta* will not be conducted in greenhouses or surrounding areas. However, the export tomato production areas must be visually inspected and found free of *T. absoluta*. The entire tomato and stem must be carefully inspected for larvae or oviposition sites. The female oviposits, up to 260 eggs, into small (3 - 4 cm) unripened fruits (CABI, 2002). Larvae develop in the fruit for approximately 20 days (CABI, 2002). Their lengthy development times will help to facilitate finding the larvae because it allows for multiple inspections, development of more highly visible damage, and increased size of the larvae. *T. absoluta* can follow the pathway as larvae inside the fruits or as adults externally on the fruits. Since *T. absoluta* can destroy 50-100% of tomato crops (CABI, 2002), inspection for *T. absoluta* is essential and must continue for the entire growing season. Regular inspections are recognized by APHIS and Kahn and Mather (1999) as an important part of a pest management program.
Protection of fruit for export Methods 9, 10, 11	*T. absoluta* females prefer to oviposit in small unripe fruits (3-4 cm in diameter) (CABI, 2002). The tomatoes picked for export will be significantly larger and riper than what *T. absoluta* females prefer to oviposit in. Tomatoes must be packed within 24 hours of harvest in a pest exclusionary house and must be safeguarded by a tarpaulin or screen during transit. The packing and shipping methods will also deter adult *T. absoluta* and additional pests that may hitch-hike with the shipment.

[1] see **B. Phytosanitary measures for the requested systems approach to allow tomatoes from Chile to enter the United States in lieu of treatment.**

3.5 Conclusion

Phytosanitary measures in the proposed systems approach are designed to establish and maintain a pest-free production environment and safeguard the commodity after harvest until entry into the United States. These mitigations, when applied to the importation of tomatoes from Chile, effectively remove the pests of concern identified in the risk assessment from the pathway, thus precluding their introduction into the United States.

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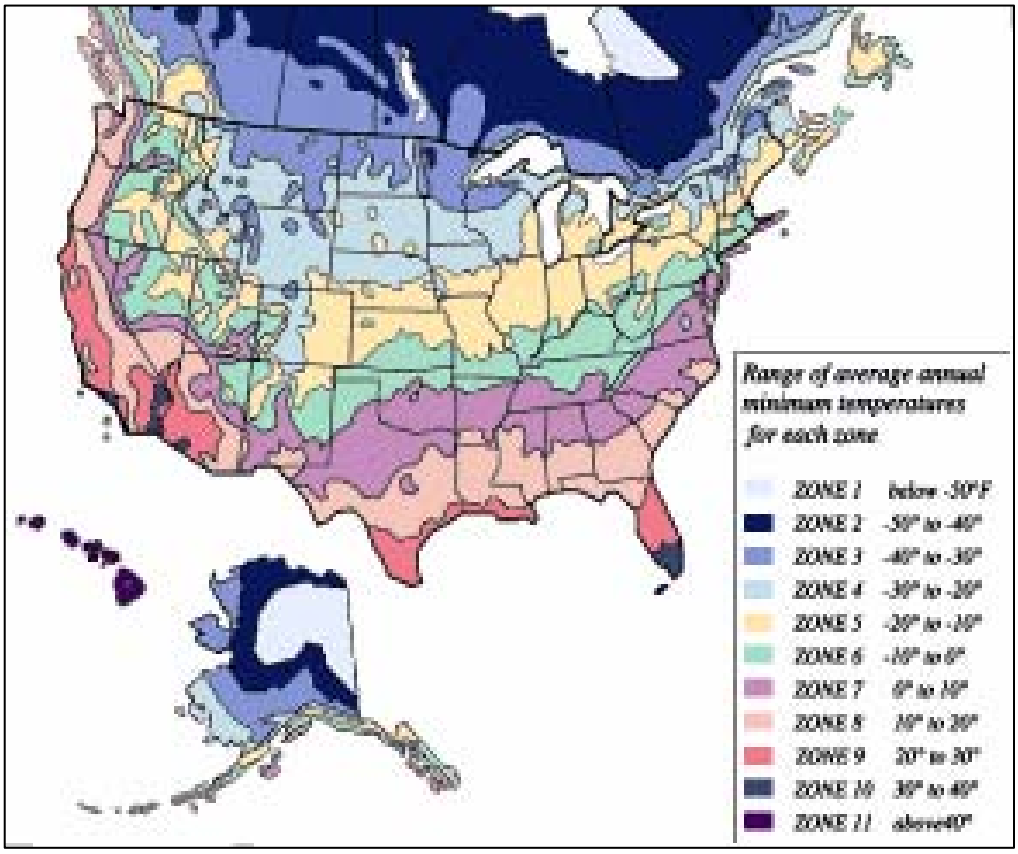
APPENDIX I: USDA Plant Hardiness Zone Map.

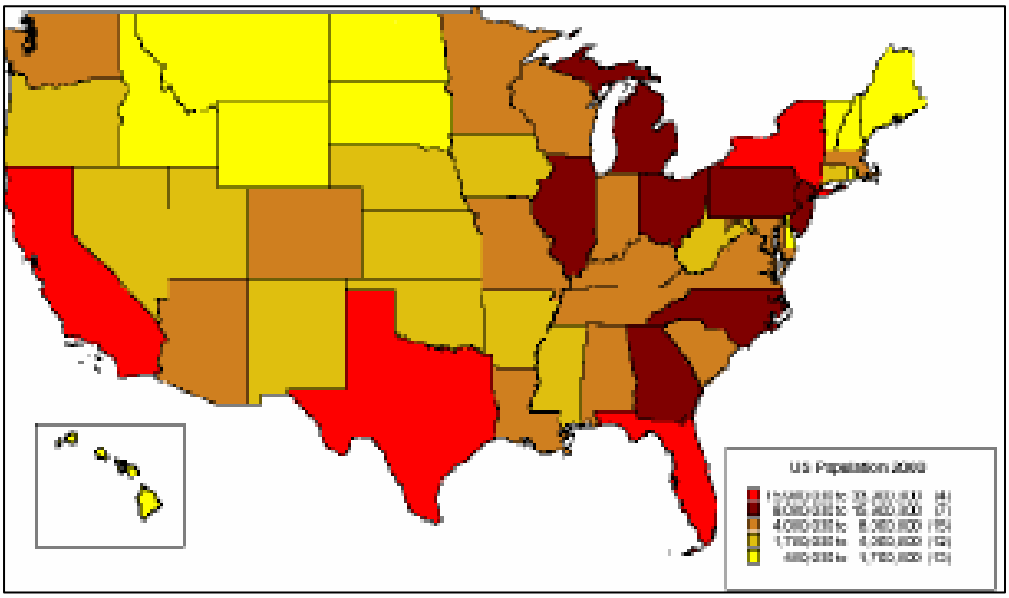


APPENDIX II: Monthly Absolute Minimum Temperatures in Chile

CITY	REGION	MONTH												YEARLY MINIMUM (ºC)
		J	F	M	A	M	J	J	A	S	O	N	D	
Arica Lat. 18º 28' S-Long. 70º 02' W	I	11.0	12.0	11.15	10.2	8.3	8.5	**5.2**	6.5	8.0	9.0	10.5	11.0	9.31
	II	WI	WI[(1)]	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
Caldera Lat. 27º 03' S-Long. 70º 51' W	III	11.4	11.4	10.0	4.8	6.0	4.0	**2.8**	3.0	4.0	6.3	6.5	9.0	6.6
Ovalle Lat. 30º 03' S-Long. 71º 01' W	IV	9.4	9.3	7.5	6.1	3.7	2.0	**1.5**	1.8	2.9	4.0	6.4	8.3	5.24
Quillota Lat. 32º 43' S-Long. 71º 16' W	V	8.4	7.8	5.3	3.6	2.7	0.9	0.4	**0.1**	2.4	3.3	5.2	6.7	3.9
Santiago Lat. 33º 34' S-Long. 70º 38' W	RM	7.1	6.2	3.8	1.5	0.0	-1.8	**-2.5**	-2.1	-0.8	0.6	3.6	5.4	1.75
Rengo Lat. 34º 24' S-Long. 70º 52' W	VI	10.2	6.7	5.6	0.6	-1.0	-3.0	**-3.2**	-0.6	-1.1	1.6	2.2	6.7	2.06
Talca Lat. 35º 26' S-Long. 71º 40' W	VII	9.7	8.7	5.7	2.0	-0.9	-1.9	**-2.0**	-1.8	1.8	2.6	5.7	9.1	3.23
Chillán Lat. 36º 34' S-Long. 72º 06' W	VIII	7.0	5.1	2.5	-0.4	-2.3	-2.0	**-3.6**	-2.4	-1.5	0.3	3.5	4.1	0.86
Angol Lat. 37º 47' S-Long. 72º 42' W	IX	6.4	5.5	2.8	0.4	-2.0	-2.3	-2.3	**-2.6**	-0.5	0.6	1.9	3.7	0.97
Remehue Lat. 40º 35' S-Long. 73º 09' W	X	2.4	2.4	0.3	-1.7	-1.3	**-4.2**	-3.5	-2.8	-2.6	-1.0	0.0	1.8	-0.85
Chile Chico Lat. 45° 24' S-Long. 72° 42' W	XI	5.5	5.2	3.2	-0.9	-4.4	**-8.0**	-6.9	-5.5	-3.4	-0.5	3.4	5.6	-056

Source: Novoa, R.; Villaseca, ,S. *et al,* 1989. Mapa Agroclimático de Chile Animal and Plant Investigation Institute, Chile.
(1) WI: Without Information

APPENDIX III: USA Population Map 2000 (Census 2000)



APPENDIX IV: PIN 309 Interception Data from the United States:

Pest	Where Intercepted	Interception Date
Gelechiidae species	Permit cargo	12/2002
Gelechiidae species	Ship quarters	06/1996
Gnorimoschema species	Stores	02/1990
Tephritidae species	Stores	10/1993

APPENDIX V: PIN 309 Interception Data of Tomato Fruit Imported into the United States:

WHERE= 1= Baggage, 2= Mail, 3= General Cargo, 4= Permit Cargo, 5= Miscellaneous, 6= Ship Stores, 7= Ship Quarters, 8= Ship Holds

PIN309 Ad-hoc Report	Results for Tomatoes				
ORIGIN	**PEST**	**LOCATION**	**WHERE**	**IntDate**	**TOTAL**
AFRICA (COUNTRY	CLADOSPORIUM SP.	(FRUIT)	6	1993/05	1
ARGENTINA(?)	NEOLEUCINODES SP.	(FRUIT)	5	1988/10	1
ARGENTINA	CLADOSPORIUM SP.	(FRUIT)	7	1997/01	1
ARGENTINA	DIABROTICA SPECIOSA	(FRUIT)	6	1986/03	1
AUSTRALIA	CLADOSPORIUM SP.		6	1998/06	1
BAHAMAS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1992/02	1
BAHAMAS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1992/03	1
BAHAMAS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1992/04	1
BAHAMAS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/04	1
BAHAMAS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1996/04	1
BAHAMAS	PLANOCOCCUS SP.	(FRUIT)	1	1992/12	1
BAHAMAS	PSEUDOCOCCIDAE, SPECIES	(FRUIT)	1	1990/03	1
BAHAMAS	PSEUDOCOCCIDAE, SPECIES	(FRUIT)	1	1991/01	1
BAHAMAS	PSEUDOCOCCUS SP.	(FRUIT)	1	1995/01	2
BAHAMAS	THRIPS PALMI	(FRUIT)	4	1995/03	1
BAHAMAS	VERONICELLA SP.	(FRUIT)	1	1994/01	1
BAHAMAS	XANTHOMONAS CAMPESTRIS	(FRUIT)	1	1993/05	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1996/05	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1993/08	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1995/11	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/01	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/11	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/05	5
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/06	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/07	4
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/10	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/11	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/12	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/05	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/06	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/08	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/12	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/05	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/06	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/07	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/09	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/10	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/11	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/12	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/07	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/11	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/06	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/07	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/09	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/11	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/07	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/06	1
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/08	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/07	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/10	2
BELGIUM	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/12	1
BELGIUM	AGROMYZIDAE, SPECIES OF		3	1999/09	1
BELGIUM	AGROMYZIDAE, SPECIES OF		3	2003/06	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	1997/06	2
BELGIUM	AGROMYZIDAE, SPECIES OF		4	1997/08	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	1997/10	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	1998/07	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	1998/12	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	2001/09	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	2001/10	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	2003/06	1
BELGIUM	AGROMYZIDAE, SPECIES OF		4	2004/08	1
BELGIUM	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1999/09	1
BELGIUM	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1999/12	1
BELGIUM	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	2003/08	1
BELGIUM	APHIDIDAE, SPECIES OF	(FRUIT)	4	1996/07	1
BELGIUM	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1998/05	1
BELGIUM	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1999/01	1
BELGIUM	CHRYSODEIXIS CHALCITES		4	1997/10	1
BELGIUM	CHRYSODEIXIS CHALCITES		4	1997/11	1
BELGIUM	CHRYSODEIXIS CHALCITES		4	1998/10	1
BELGIUM	DIPTERA, SPECIES OF	(FRUIT)	3	2003/06	1
BELGIUM	DIPTERA, SPECIES OF	(FRUIT)	4	1999/08	1
BELGIUM	LEPIDOPTERA, SPECIES OF		4	1998/07	1
BELGIUM	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2000/11	1
BELGIUM	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2000/12	1
BELGIUM	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2002/09	1
BELGIUM	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2004/07	3
BELGIUM	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2004/10	1
BELGIUM	MACROLOPHUS MELANOTOMA		4	2000/12	1
BELGIUM	MACROLOPHUS MELANOTOMA		4	2001/01	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
BELGIUM	MACROLOPHUS MELANOTOMA		4	2004/07	1
BELGIUM	MACROLOPHUS MELANOTOMA		4	2004/08	1
BELGIUM	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1995/11	1
BELGIUM	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/09	1
BELGIUM	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1998/12	1
BELGIUM	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1999/11	1
BELGIUM	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1999/12	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1996/01	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1996/10	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1996/11	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1997/10	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1997/12	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1998/07	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1998/08	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1998/09	2
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1999/07	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1999/09	3
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1999/10	4
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	1999/11	4
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2000/09	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2000/10	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2000/11	2
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2000/12	2
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2001/08	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2002/08	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2003/07	1
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2003/08	2
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2003/09	2
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2003/10	3
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2004/09	3
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2004/10	6
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2004/11	10
BELGIUM	MACROLOPHUS SP.	(FRUIT)	4	2004/12	7
BELGIUM	MACROLOPHUS SP.		4	1996/05	1
BELGIUM	MACROLOPHUS SP.		4	1996/07	1
BELGIUM	MACROLOPHUS SP.		4	1996/10	1
BELGIUM	MACROLOPHUS SP.		4	1997/10	2
BELGIUM	MACROLOPHUS SP.		4	1997/11	1
BELGIUM	MACROLOPHUS SP.		4	1998/09	1
BELGIUM	MACROLOPHUS SP.		4	1998/10	1
BELGIUM	MACROLOPHUS SP.		4	2001/10	1
BELGIUM	MACROLOPHUS SP.		4	2001/11	1
BELGIUM	MACROLOPHUS SP.		4	2002/10	1
BELGIUM	MACROLOPHUS SP.		4	2004/10	1
BELGIUM	MACROSIPHUM SP.	(FRUIT)	4	1997/12	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1995/11	2

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1995/12	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/07	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/08	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/09	2
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/07	2
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/08	5
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/09	5
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/10	9
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/11	8
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/12	8
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/09	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/10	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/11	2
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/09	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/09	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/11	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/07	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/08	1
BELGIUM	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/11	1
BELGIUM	MIRIDAE, SPECIES OF	(STEM)	4	1997/08	1
BELGIUM	MIRIDAE, SPECIES OF	(STEM)	4	1997/10	1
BELGIUM	MIRIDAE, SPECIES OF	(STEM)	4	1997/11	1
BELGIUM	MIRIDAE, SPECIES OF	(STEM)	4	2004/10	1
BELGIUM	MIRIDAE, SPECIES OF		4	2001/08	1
BELGIUM	MIRIDAE, SPECIES OF		4	2002/08	1
BELGIUM	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1997/09	1
BELGIUM	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1999/11	1
BRAZIL(?)	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1989/05	1
BRAZIL(?)	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1989/10	1
BRAZIL	DIPTERA, SPECIES OF	(FRUIT)	6	1989/05	1
BRAZIL	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1987/10	1
BRAZIL	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1990/12	1
BRAZIL	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1993/07	1
BRAZIL	KEIFERIA SP.	(FRUIT)	6	1988/10	1
BRAZIL	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1986/05	1
BRAZIL	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1987/08	1
BRAZIL	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1988/08	1
BRAZIL	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1990/02	1
BRAZIL	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1990/07	1
BRAZIL	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1995/06	1
BRAZIL	NEOLEUCINODES ELEGANTAL	(FRUIT)	7	1995/12	2
BRAZIL	NEOLEUCINODES ELEGANTAL		6	2002/01	1
BRAZIL	STEMPHYLIUM SP.	(FRUIT)	7	1995/08	1
CANADA	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/01	1
CANADA	CLADOSPORIUM SP.	(FRUIT)	6	1998/01	1
CANADA	STEMPHYLIUM SP.	(FRUIT)	6	1998/01	1
CHILE(?)	GNORIMOSCHEMA SP.	(FRUIT)	6	1990/02	1
CHILE	GELECHIIDAE, SPECIES OF	(FRUIT)	7	1996/06	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
COLOMBIA(?)	LEUCINODES SP.	(FRUIT)	6	1989/04	1
COLOMBIA(?)	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1989/02	1
COLOMBIA(?)	NEOLEUCINODES SP.	(FRUIT)	6	1989/02	1
COLOMBIA	CURCULIONIDAE, SPECIES	(FRUIT)	7	1992/02	1
COLOMBIA	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1990/08	1
COLOMBIA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1991/03	1
COLOMBIA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1992/09	1
COLOMBIA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1992/11	1
COLOMBIA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1993/10	1
COLOMBIA	NOCTUIDAE, SPECIES OF	(FRUIT)	6	1990/03	1
COLOMBIA	PSEUDOCOCCIDAE, SPECIES		1	2004/06	1
COLOMBIA	PYRALIDAE, SPECIES OF	(FRUIT)	6	1986/11	1
COLOMBIA	XANTHOMONAS CAMPESTRIS	(FRUIT)	6	1994/07	1
COSTA RICA	GELECHIIDAE, SPECIES OF		4	1997/12	1
DOMINICA****	CERATOTHRIPOIDES BRUNNE	(FRUIT)	4	2001/04	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	1990/06	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1986/04	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1985/03	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1986/02	2
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1986/03	2
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1986/04	3
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1987/03	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1989/01	2
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1989/02	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1990/01	2
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1990/02	10
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1990/03	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1990/06	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1991/06	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF		3	2001/06	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF		4	2004/11	1
DOMINICAN REPUB	AGROMYZIDAE, SPECIES OF		4	2004/12	1
DOMINICAN REPUB	ARTERUS SP.		4	1990/02	1
DOMINICAN REPUB	BLAPSTINUS SP.	(FRUIT)	4	1986/03	1
DOMINICAN REPUB	BLAPSTINUS SP.	(FRUIT)	4	1987/04	1
DOMINICAN REPUB	CHLOROPIDAE, SPECIES OF	(FRUIT)	4	1992/03	1
DOMINICAN REPUB	CONODERUS SP.	(FRUIT)	4	1987/04	1
DOMINICAN REPUB	CYCLOCEPHALA SP.	(FRUIT)	4	1986/04	1
DOMINICAN REPUB	CYCLOCEPHALA SP.	(FRUIT)	4	1987/04	1
DOMINICAN REPUB	GRYLLUS SP.	(FRUIT)	4	1987/03	1
DOMINICAN REPUB	GRYLLUS SP.	(FRUIT)	4	2004/05	1
DOMINICAN REPUB	HESPERIIDAE, SPECIES OF	(FRUIT)	4	1987/01	1
DOMINICAN REPUB	KEIFERIA SP.	(FRUIT)	4	1986/04	2
DOMINICAN REPUB	LIRIOMYZA SP.	(FRUIT)	4	1986/04	1
DOMINICAN REPUB	MEGAPENTHES SP.	(FRUIT)	4	1986/04	1
DOMINICAN REPUB	NOCTUIDAE, SPECIES OF	(FRUIT)	1	1989/07	1
DOMINICAN REPUB	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1990/05	1
DOMINICAN REPUB	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1991/03	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
DOMINICAN REPUB	PSEUDOCOCCUS SP.	(FRUIT)	4	1986/04	1
DOMINICAN REPUB	TORTRICIDAE, SPECIES OF	(FRUIT)	4	1986/04	1
ECUADOR(?)	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1989/12	1
ECUADOR	AGROMYZIDAE, SPECIES OF	(FRUIT)	6	1986/03	1
ECUADOR	BLAPSTINUS SP.	(FRUIT)	3	1990/02	1
ECUADOR	NEOLEUCINODES ELEGANTAL	(FRUIT)	1	1999/01	1
ECUADOR	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1987/01	1
ECUADOR	PYRALIDAE, SPECIES OF	(FRUIT)	6	1986/10	1
EGYPT	PSEUDOCOCCIDAE, SPECIES	(LEAF)	1	1992/07	1
EL SALVADOR	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/02	1
EL SALVADOR	NOCTUIDAE, SPECIES OF	(FRUIT)	1	2003/11	1
EUROPE (COUNTRY(?)	HELICOVERPA SP.	(FRUIT)	1	1991/12	1
FRANCE	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/11	1
FRANCE	MACROLOPHUS SP.	(FRUIT)	4	1998/10	1
FRANCE	MACROLOPHUS SP.		4	1997/11	1
FRANCE	MACROLOPHUS SP.		4	1998/10	1
GAMBIA	SPODOPTERA SP.		1	1997/04	1
GHANA	LEUCINODES ORBONALIS	(FRUIT)	1	1999/02	1
GUATEMALA	ARCTIIDAE, SPECIES OF	(FRUIT)	6	1990/07	1
GUATEMALA	LONCHAEIDAE, SPECIES OF	(FRUIT)	1	1993/08	1
GUATEMALA	TORTRICIDAE, SPECIES OF	(FRUIT)	1	1995/12	1
HAITI	SPODOPTERA SP.	(FRUIT)	1	1988/03	1
HAWAII	BACTROCERA CUCURBITAE	(FRUIT)	1	1988/07	1
HAWAII	BACTROCERA CUCURBITAE	(FRUIT)	1	1991/03	1
HAWAII	BACTROCERA CUCURBITAE	(FRUIT)	1	1991/06	2
HAWAII	BACTROCERA CUCURBITAE	(FRUIT)	1	1991/07	1
HAWAII	BACTROCERA CUCURBITAE	(FRUIT)	1	1991/08	2
HAWAII	BACTROCERA CUCURBITAE	(FRUIT)	1	1999/04	1
HAWAII	BACTROCERA CUCURBITAE		1	2001/03	1
HAWAII	BACTROCERA CUCURBITAE		1	2001/05	1
HAWAII	BACTROCERA DORSALIS	(FRUIT)	1	1989/07	1
HAWAII	BACTROCERA DORSALIS	(FRUIT)	1	1993/08	1
HAWAII	BACTROCERA DORSALIS	(FRUIT)	1	1993/09	1
HAWAII	BACTROCERA DORSALIS	(LEAF)	1	2000/04	1
HAWAII	BACTROCERA LATIFRONS	(FRUIT)	1	2000/08	1
HAWAII	BACTROCERA SP.	(FRUIT)	1	2002/07	1
HAWAII	DACUS CUCURBITAE	(FRUIT)	1	1985/03	1
HAWAII	DACUS CUCURBITAE	(FRUIT)	1	1985/04	1
HAWAII	DACUS CUCURBITAE	(FRUIT)	1	1985/05	5
HAWAII	DACUS CUCURBITAE	(FRUIT)	1	1985/08	1
HAWAII	DACUS CUCURBITAE	(FRUIT)	1	1989/02	1
HAWAII	DACUS DORSALIS	(FRUIT)	1	1985/06	1
HONDURAS	NEOLEUCINODES ELEGANTAL	(FRUIT)	1	1995/10	1
INDIA	UROCHLOA SP.	(SEED)	2	1991/02	4
INDIA	UROCHLOA SP.	(SEED)	3	1991/02	1
INDONESIA	HELIOTHIS SP.	(FRUIT)	1	1987/05	1
ISRAEL	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	1998/12	1
ISRAEL	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1995/03	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
ISRAEL	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	2003/01	1
ISRAEL	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/02	1
ISRAEL	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/01	1
ISRAEL	AGROMYZIDAE, SPECIES OF	(STEM)	4	1996/12	1
ISRAEL	AGROMYZIDAE, SPECIES OF		3	1997/12	1
ISRAEL	AMPHIPYRINAE, SPECIES O	(FRUIT)	4	1998/04	1
ISRAEL	APHIDIDAE, SPECIES OF		3	2003/02	1
ISRAEL	CLADOSPORIUM SP.	(FRUIT)	6	2003/02	1
ISRAEL	COLEOPTERA, SPECIES OF		4	1997/05	1
ISRAEL	DICYPHINAE, SPECIES OF	(FRUIT)	4	2003/04	1
ISRAEL	FRANKLINIELLA SP.	(FRUIT)	1	1991/05	1
ISRAEL	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/10	1
ISRAEL	OXYCARENUS HYALINIPENNI	(FRUIT)	4	2001/01	1
ISRAEL	TARSONEMUS SP.	(FRUIT)	4	1998/01	1
ITALY	CLADOSPORIUM SP.	(FRUIT)	3	1991/09	1
ITALY	CLADOSPORIUM SP.	(FRUIT)	6	1999/02	1
ITALY	HELICOVERPA ARMIGERA	(FRUIT)	1	1997/03	1
ITALY	HELICOVERPA SP.	(FRUIT)	1	2003/08	1
ITALY	NOCTUIDAE, SPECIES OF	(FRUIT)	1	1994/01	1
ITALY	TARSONEMUS SP.		1	1994/10	1
ITALY	TORTRICINAE, SPECIES OF	(FRUIT)	1	1996/01	1
JAMAICA	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1994/12	1
MALTA	HELICOVERPA ARMIGERA	(FRUIT)	6	1990/08	1
MEXICO	AEOLUS SP.	(FRUIT)	4	2001/03	1
MEXICO	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	1988/04	1
MEXICO	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	2004/10	1
MEXICO	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1989/02	1
MEXICO	AGROMYZIDAE, SPECIES OF	(LEAF)	1	1988/08	1
MEXICO	AGROMYZIDAE, SPECIES OF	(LEAF)	4	1989/05	1
MEXICO	AGROMYZIDAE, SPECIES OF	(LEAF)	4	1990/12	1
MEXICO	AGROMYZIDAE, SPECIES OF	(LEAF)	6	1989/04	1
MEXICO	ALTICA SP.	(FRUIT)	1	1996/02	1
MEXICO	ATHERIGONA SP.		4	2001/07	1
MEXICO	BLAPSTINUS SP.	(FRUIT)	3	1985/08	1
MEXICO	BLAPSTINUS SP.	(FRUIT)	4	1993/06	1
MEXICO	BLISSUS SP.		4	2001/11	1
MEXICO	CALOCORIS SP.	(FRUIT)	4	1998/05	1
MEXICO	CECIDOMYIIDAE, SPECIES	(FRUIT)	4	1987/04	1
MEXICO	CHLOROPIDAE, SPECIES OF	(FRUIT)	4	1988/07	1
MEXICO	CHRYSOMELIDAE, SPECIES	(FRUIT)	4	1987/05	1
MEXICO	CICADELLIDAE, SPECIES O	(FRUIT)	4	1990/04	1
MEXICO	CLADOSPORIUM SP.	(FRUIT)	6	1997/12	1
MEXICO	CLADOSPORIUM SP.	(FRUIT)	7	1997/01	1
MEXICO	CLADOSPORIUM SP.		4	2000/05	1
MEXICO	COLASPIS SP.	(FRUIT)	1	1993/11	1
MEXICO	COLUMBONIRVANA SP.		4	2000/10	1
MEXICO	COPITARSIA SP.	(FRUIT)	4	1990/03	1
MEXICO	COPITARSIA SP.	(FRUIT)	4	1993/11	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
MEXICO	COPITARSIA SP.	(FRUIT)	6	1987/05	1
MEXICO	CURCULIONIDAE, SPECIES	(FRUIT)	4	1987/09	1
MEXICO	DENDROCTONUS SP.	(FRUIT)	4	2003/09	1
MEXICO	GELECHIIDAE, SPECIES OF	(FRUIT)	4	1988/09	1
MEXICO	GELECHIIDAE, SPECIES OF	(FRUIT)	4	1998/08	1
MEXICO	GEOMETRIDAE, SPECIES OF	(FRUIT)	1	1988/06	1
MEXICO	GEOMETRIDAE, SPECIES OF	(FRUIT)	1	1989/11	1
MEXICO	GNATHOTRICHUS SP.	(FRUIT)	4	1988/04	1
MEXICO	GRYLLUS SP.	(FRUIT)	3	2001/05	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	1985/01	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	1987/05	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	1989/02	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	1996/04	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	2001/05	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	2003/06	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	2004/09	1
MEXICO	GRYLLUS SP.	(FRUIT)	4	2004/10	1
MEXICO	GRYLLUS SP.		4	2002/08	1
MEXICO	HETEROPSYLLA SP.	(FRUIT)	4	1989/03	1
MEXICO	HYLASTES SP.	(FRUIT)	4	2002/08	1
MEXICO	IPS SP.	(FRUIT)	4	1997/03	1
MEXICO	KEIFERIA SP.	(FRUIT)	4	1997/01	1
MEXICO	LAMIINAE, SPECIES OF	(FRUIT)	4	2003/01	1
MEXICO	LEPIDOPTERA, SPECIES OF	(FRUIT)	4	1997/01	1
MEXICO	LIRIOMYZA SP.	(FRUIT)	4	1989/03	1
MEXICO	LIRIOMYZA SP.	(FRUIT)	4	1990/02	1
MEXICO	MELOIDAE, SPECIES OF		1	2000/07	1
MEXICO	METACHROMA SP.	(FRUIT)	5	1994/05	1
MEXICO	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1988/01	1
MEXICO	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1989/07	1
MEXICO	NOCTUIDAE, SPECIES OF	(FRUIT)	6	2002/07	1
MEXICO	NODONOTA SP.	(FRUIT)	4	1985/04	1
MEXICO	NYSIUS SP.	(FRUIT)	4	1987/05	1
MEXICO	NYSIUS SP.	(FRUIT)	4	1990/01	1
MEXICO	NYSIUS SP.	(FRUIT)	4	1990/09	1
MEXICO	PARTHENICUS SP.	(FRUIT)	4	1989/03	1
MEXICO	PENTATOMIDAE, SPECIES O	(FRUIT)	1	1997/04	1
MEXICO	PENTATOMIDAE, SPECIES O		4	1997/11	1
MEXICO	PITYOPHTHORUS SP.	(FRUIT)	4	2004/01	1
MEXICO	PITYOPHTHORUS SP.	(FRUIT)	3	2001/01	1
MEXICO	PITYOPHTHORUS SP.	(FRUIT)	4	2003/09	1
MEXICO	PITYOPHTHORUS SP.	(FRUIT	4	2002/10	1
MEXICO	PITYOPHTHORUS SP.		3	2002/10	2
MEXICO	PLATYNOTA SP.	(LEAF)	1	2004/04	1
MEXICO	PLATYPUS SP.	(FRUIT)	4	2004/10	1
MEXICO	PSYLLIDAE, SPECIES OF	(FRUIT)	4	1991/01	2
MEXICO	RHAGOLETIS SP.	(FRUIT)	1	1988/10	1
MEXICO	SCOLYTIDAE, SPECIES OF	(FRUIT)	4	2003/09	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
MEXICO	SCOLYTIDAE, SPECIES OF	(FRUIT)	4	2005/01	1
MEXICO	SCOLYTIDAE, SPECIES OF	(FRUIT)	4	2003/09	1
MEXICO	SCOLYTIDAE, SPECIES OF	(FRUIT)	4	2003/01	1
MEXICO	SCOLYTIDAE, SPECIES OF	(FRUIT)	4	2003/02	1
MEXICO	SCOLYTIDAE, SPECIES OF	(FRUIT)	4	2004/10	1
MEXICO	SPODOPTERA SP.	(FRUIT)	3	1992/02	1
MEXICO	STEPHANOPACHYS SP.	(FRUIT)	4	1985/01	1
MEXICO	STEPHANOPACHYS SP.	(FRUIT)	4	1985/02	1
MEXICO	STEPHANOPACHYS SP.	(FRUIT)	4	1986/03	1
MEXICO	TEPHRITIDAE, SPECIES OF	(FRUIT)	1	1989/10	1
MEXICO	TEPHRITIDAE, SPECIES OF	(FRUIT)	1	1996/10	1
MEXICO	TROPIDOSTEPTES SP.	(FRUIT)	4	1987/05	1
MEXICO	ULUS SP.	(FRUIT)	1	1994/02	1
MEXICO	XYLEBORUS SP.	(FRUIT)	4	1985/12	1
MOROCCO	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1994/10	1
MOROCCO	HELICOVERPA ARMIGERA	(FRUIT)	6	1993/07	1
NETHERLANDS	AGRIOLIMAX SP.	(FRUIT)	4	1998/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	1995/12	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	1996/09	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	1998/10	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1994/12	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1995/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1995/10	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1995/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1995/12	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1996/04	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1996/05	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1996/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1996/08	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1996/10	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1997/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1998/06	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1998/10	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1999/01	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1999/08	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	2001/11	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	2001/12	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	2002/10	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	2003/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1995/08	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1995/10	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1995/11	15
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1995/12	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/03	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/04	7
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/05	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/06	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/07	2

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/09	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/10	7
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/11	21
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1996/12	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/04	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/05	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/06	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/07	9
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/08	12
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/09	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/10	13
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/11	17
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/12	11
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/01	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/03	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/04	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/05	8
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/06	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/07	9
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/08	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/09	14
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/10	20
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/11	29
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/12	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/01	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/04	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/05	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/06	14
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/07	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/08	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/09	27
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/10	36
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/11	39
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/12	11
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/01	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/05	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/06	12
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/07	12
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/08	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/09	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/10	25
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/11	17
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2000/12	15
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/01	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/03	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/04	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/05	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/06	13

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/07	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/08	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/09	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/10	36
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/11	29
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/12	17
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/01	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/03	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/04	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/05	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/06	8
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/07	11
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/08	7
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/09	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/10	12
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/11	15
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/12	9
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/01	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/03	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/04	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/05	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/06	9
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/07	7
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/08	9
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/10	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/11	6
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2003/12	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/01	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/04	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/05	13
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/06	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/07	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/08	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/09	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/10	21
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2004/11	11
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2005/02	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(FRUIT)	6	1998/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(LEAF)	4	1997/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(LEAF)	4	2000/10	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(STEM)	4	1996/10	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(STEM)	4	1997/06	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(STEM)	4	1997/12	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF	(STEM)	4	1999/10	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		1	1997/01	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		1	2002/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	1997/06	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	1997/07	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	1997/08	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	1997/11	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	1997/12	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	2000/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	2002/05	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		3	2004/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1996/05	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1996/08	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1996/10	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1996/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/03	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/04	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/05	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/06	8
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/07	9
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/08	10
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/09	7
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/10	16
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/11	13
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1997/12	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/01	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/04	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/05	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/06	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/07	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/08	8
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/09	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/10	16
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1998/12	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1999/06	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1999/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1999/09	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	1999/12	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2000/05	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2000/07	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2000/09	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2000/11	7
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2000/12	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/04	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/05	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/06	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/07	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/08	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/09	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/10	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/11	8
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2001/12	13

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2002/01	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2002/04	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2002/07	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2002/08	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2002/09	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2002/11	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2003/03	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2003/04	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2003/05	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2003/06	5
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2003/07	3
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2003/08	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2003/12	1
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2004/05	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2004/09	2
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2004/10	4
NETHERLANDS	AGROMYZIDAE, SPECIES OF		4	2004/11	4
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	3	1997/01	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1995/10	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1996/07	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1997/12	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1998/10	2
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1999/09	2
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	1999/11	2
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	2000/12	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	2001/11	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	2001/12	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF	(FRUIT)	4	2004/01	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF		3	2004/12	1
NETHERLANDS	ALEYRODIDAE, SPECIES OF		4	1996/09	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	3	1998/05	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	3	2002/01	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1993/05	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1996/06	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1998/05	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1998/06	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1998/07	3
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1998/10	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	1999/06	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	2000/06	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	2000/07	1
NETHERLANDS	APHIDIDAE, SPECIES OF	(FRUIT)	4	2002/08	1
NETHERLANDS	APHIDIDAE, SPECIES OF		4	1997/07	1
NETHERLANDS	APHIDIDAE, SPECIES OF		4	1998/07	1
NETHERLANDS	AUTOGRAPHA GAMMA	(FRUIT)	4	2001/12	1
NETHERLANDS	AUTOGRAPHA GAMMA	(FRUIT)	4	2002/04	1
NETHERLANDS	AUTOGRAPHA GAMMA	(FRUIT)	4	2003/08	2
NETHERLANDS	AUTOGRAPHA GAMMA		4	1998/08	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	AUTOGRAPHA GAMMA		4	1998/09	1
NETHERLANDS	AUTOGRAPHA GAMMA		4	2001/08	1
NETHERLANDS	CACOECIMORPHA PRONUBANA	(FRUIT)	3	2001/11	1
NETHERLANDS	CACOECIMORPHA PRONUBANA	(FRUIT)	4	2002/09	1
NETHERLANDS	CARNIDAE, SPECIES OF		4	1996/03	1
NETHERLANDS	CHAETOCNEMA SP.	(FRUIT)	1	1995/08	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	3	1997/08	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1996/08	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1998/05	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1998/09	2
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1998/10	2
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1999/09	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	1999/10	2
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2000/12	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2001/09	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2001/10	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2002/07	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2002/08	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2002/09	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2002/10	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(FRUIT)	4	2003/07	1
NETHERLANDS	CHRYSODEIXIS CHALCITES	(STEM)	4	2004/06	1
NETHERLANDS	CHRYSODEIXIS CHALCITES		3	1999/09	1
NETHERLANDS	CHRYSODEIXIS CHALCITES		3	2000/12	2
NETHERLANDS	CHRYSODEIXIS CHALCITES		4	1998/07	1
NETHERLANDS	CHRYSODEIXIS CHALCITES		4	1998/10	1
NETHERLANDS	CHRYSODEIXIS SP.	(FRUIT)	3	1994/11	1
NETHERLANDS	CHRYSODEIXIS SP.	(FRUIT)	3	1995/06	1
NETHERLANDS	CHRYSODEIXIS SP.	(FRUIT)	4	1995/12	1
NETHERLANDS	CHRYSODEIXIS SP.	(FRUIT)	4	1996/10	1
NETHERLANDS	CHRYSODEIXIS SP.	(FRUIT)	4	1997/08	1
NETHERLANDS	CHRYSODEIXIS SP.	(FRUIT)	4	1998/12	1
NETHERLANDS	CHRYSODEIXIS SP.		3	1995/06	1
NETHERLANDS	CICADELLIDAE, SPECIES O	(FRUIT)	4	2003/05	1
NETHERLANDS	CICADELLIDAE, SPECIES O		4	1998/08	1
NETHERLANDS	CLADOSPORIUM SP.	(FRUIT)	6	1998/03	1
NETHERLANDS	CLADOSPORIUM SP.		3	1998/06	1
NETHERLANDS	CLADOSPORIUM SP.		6	1998/06	1
NETHERLANDS	CLEPSIS SP.	(FRUIT)	4	1999/05	1
NETHERLANDS	CYRTOPELTIS SP.	(FRUIT)	3	1995/07	1
NETHERLANDS	CYRTOPELTIS SP.	(FRUIT)	3	1995/08	1
NETHERLANDS	DICYPHUS SP.	(FRUIT)	4	1996/07	3
NETHERLANDS	DIPTERA, SPECIES OF	(FRUIT)	4	1997/07	1
NETHERLANDS	DIPTERA, SPECIES OF		3	1999/09	1
NETHERLANDS	DUPONCHELIA FOVEALIS	(FRUIT)	4	2002/04	1
NETHERLANDS	FRANKLINIELLA INTONSA	(FRUIT)	4	2003/11	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	GEOMETRIDAE, SPECIES OF		4	1996/12	1
NETHERLANDS	HELICOVERPA SP.		3	1995/07	1
NETHERLANDS	HETEROPTERA, SPECIES OF	(FRUIT)	4	2000/08	5
NETHERLANDS	HETEROPTERA, SPECIES OF	(FRUIT)	4	2000/09	1
NETHERLANDS	HETEROPTERA, SPECIES OF	(FRUIT)	4	2000/11	1
NETHERLANDS	HETEROPTERA, SPECIES OF	(FRUIT)	4	2001/09	1
NETHERLANDS	HETEROPTERA, SPECIES OF	(FRUIT)	4	2001/12	1
NETHERLANDS	HETEROPTERA, SPECIES OF	(STEM)	4	2001/10	1
NETHERLANDS	HETEROPTERA, SPECIES OF		3	2001/06	1
NETHERLANDS	HETEROPTERA, SPECIES OF		4	1997/10	1
NETHERLANDS	HETEROPTERA, SPECIES OF		4	2001/08	1
NETHERLANDS	HETEROPTERA, SPECIES OF		4	2001/09	1
NETHERLANDS	HYMENOPTERA, SPECIES OF	(FRUIT)	4	1998/05	1
NETHERLANDS	INSECTA, SPECIES OF		4	1998/05	1
NETHERLANDS	LAESTADIA MINUSCULA		3	1996/12	1
NETHERLANDS	LEPIDOPTERA, SPECIES OF	(FRUIT)	4	1998/12	1
NETHERLANDS	LEPIDOPTERA, SPECIES OF	(FRUIT)	4	2000/04	1
NETHERLANDS	LEPIDOPTERA, SPECIES OF		4	1997/08	1
NETHERLANDS	LIRIOMYZA BRYONIAE	(FRUIT)	1	1995/12	1
NETHERLANDS	LIRIOMYZA BRYONIAE	(FRUIT)	3	1996/01	1
NETHERLANDS	LIRIOMYZA SP.	(FRUIT)	3	1996/05	4
NETHERLANDS	LIRIOMYZA SP.	(FRUIT)	4	1996/08	1
NETHERLANDS	LIRIOMYZA SP.	(FRUIT)	4	1998/09	1
NETHERLANDS	LIRIOMYZA SP.	(FRUIT)	4	2003/08	1
NETHERLANDS	LIRIOMYZA SP.		4	1997/06	1
NETHERLANDS	MACROLOPHUS CALIGINOSUS	(FRUIT)	4	1999/12	1
NETHERLANDS	MACROLOPHUS COSTALIS	(FRUIT)	4	1999/09	1
NETHERLANDS	MACROLOPHUS COSTALIS	(FRUIT)	4	1999/12	2
NETHERLANDS	MACROLOPHUS COSTALIS		4	1999/12	2
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	3	2003/07	2
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	3	2004/10	1
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2000/11	3
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2000/12	2
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2001/08	1
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2001/09	2
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2001/10	3
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2001/11	3
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2002/07	3
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2002/08	1
NETHERLANDS	MACROLOPHUS	(FRUIT)	4		3

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2002/10	4
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2002/11	2
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2002/12	1
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2003/07	2
NETHERLANDS	MACROLOPHUS MELANOTOMA	(FRUIT)	4	2004/12	1
NETHERLANDS	MACROLOPHUS MELANOTOMA	(STEM)	4	2001/08	2
NETHERLANDS	MACROLOPHUS MELANOTOMA	(STEM)	4	2001/09	1
NETHERLANDS	MACROLOPHUS MELANOTOMA		4	2000/12	1
NETHERLANDS	MACROLOPHUS MELANOTOMA		4	2001/08	1
NETHERLANDS	MACROLOPHUS MELANOTOMA		4	2001/09	1
NETHERLANDS	MACROLOPHUS MELANOTOMA		4	2002/08	1
NETHERLANDS	MACROLOPHUS MELANOTOMA		4	2003/07	1
NETHERLANDS	MACROLOPHUS MELANOTOMA		4	2003/08	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	3	1997/07	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1995/12	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1996/06	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1996/10	2
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1996/11	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1996/12	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/01	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/06	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/07	2
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/08	3
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/09	3
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/11	2
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1997/12	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1998/11	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1999/09	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	1999/11	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(FRUIT)	4	2004/04	1
NETHERLANDS	MACROLOPHUS PYGMAEUS	(STEM)	4	1997/09	1
NETHERLANDS	MACROLOPHUS PYGMAEUS		3	1997/08	1
NETHERLANDS	MACROLOPHUS PYGMAEUS		4	1996/07	1
NETHERLANDS	MACROLOPHUS PYGMAEUS		4	1996/11	2
NETHERLANDS	MACROLOPHUS PYGMAEUS		4	1997/08	2
NETHERLANDS	MACROLOPHUS PYGMAEUS		4	1997/09	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	1996/07	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	1997/01	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	1998/09	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	1998/12	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	1999/08	4
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	2000/08	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	2000/10	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	2002/08	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	3	2002/11	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1995/08	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1995/09	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1995/11	4
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1996/01	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1996/08	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1996/09	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1996/11	6
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1997/06	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1997/07	3
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1997/09	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1997/10	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1997/11	4
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1997/12	7
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1998/07	3
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1998/08	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1998/09	3
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1998/10	11
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1998/11	10
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1998/12	3
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1999/06	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1999/07	10
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1999/08	7
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1999/09	13
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1999/10	28
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1999/11	17
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	1999/12	14
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/04	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/06	5
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/07	9
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/08	10
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/09	18
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/10	7
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/11	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2000/12	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2001/06	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2001/07	4
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2001/08	4
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2001/09	7
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2001/10	14
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2001/11	10

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2001/12	3
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/02	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/03	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/04	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/05	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/06	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/07	7
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/08	13
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/09	22
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/10	10
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/11	12
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2002/12	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2003/05	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2003/06	4
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2003/07	7
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2003/08	8
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2003/09	5
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2003/10	2
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2003/11	6
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/04	1
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/05	12
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/06	11
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/07	8
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/08	4
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/09	14
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/10	15
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/11	11
NETHERLANDS	MACROLOPHUS SP.	(FRUIT)	4	2004/12	1
NETHERLANDS	MACROLOPHUS SP.	(STEM)	4	1999/08	1
NETHERLANDS	MACROLOPHUS SP.	(STEM)	4	2001/09	1
NETHERLANDS	MACROLOPHUS SP.	(STEM)	4	2002/06	2
NETHERLANDS	MACROLOPHUS SP.		1	1999/12	1
NETHERLANDS	MACROLOPHUS SP.		1	2000/11	1
NETHERLANDS	MACROLOPHUS SP.		3	1997/07	1
NETHERLANDS	MACROLOPHUS SP.		3	1997/08	1
NETHERLANDS	MACROLOPHUS SP.		3	1998/10	1
NETHERLANDS	MACROLOPHUS SP.		4	1995/07	1
NETHERLANDS	MACROLOPHUS SP.		4	1996/08	1
NETHERLANDS	MACROLOPHUS SP.		4	1996/09	1
NETHERLANDS	MACROLOPHUS SP.		4	1996/11	2
NETHERLANDS	MACROLOPHUS SP.		4	1997/07	3
NETHERLANDS	MACROLOPHUS SP.		4	1997/09	1
NETHERLANDS	MACROLOPHUS SP.		4	1997/10	4
NETHERLANDS	MACROLOPHUS SP.		4	1997/11	4
NETHERLANDS	MACROLOPHUS SP.		4	1997/12	6
NETHERLANDS	MACROLOPHUS SP.		4	1998/07	6
NETHERLANDS	MACROLOPHUS SP.		4	1998/08	1
NETHERLANDS	MACROLOPHUS SP.		4	1998/09	6

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	MACROLOPHUS SP.		4	1998/10	4
NETHERLANDS	MACROLOPHUS SP.		4	1999/08	1
NETHERLANDS	MACROLOPHUS SP.		4	1999/09	1
NETHERLANDS	MACROLOPHUS SP.		4	1999/11	2
NETHERLANDS	MACROLOPHUS SP.		4	1999/12	1
NETHERLANDS	MACROLOPHUS SP.		4	2000/11	2
NETHERLANDS	MACROLOPHUS SP.		4	2000/12	2
NETHERLANDS	MACROLOPHUS SP.		4	2001/06	1
NETHERLANDS	MACROLOPHUS SP.		4	2001/07	1
NETHERLANDS	MACROLOPHUS SP.		4	2001/08	5
NETHERLANDS	MACROLOPHUS SP.		4	2001/09	3
NETHERLANDS	MACROLOPHUS SP.		4	2001/10	5
NETHERLANDS	MACROLOPHUS SP.		4	2001/11	2
NETHERLANDS	MACROLOPHUS SP.		4	2002/04	1
NETHERLANDS	MACROLOPHUS SP.		4	2002/07	5
NETHERLANDS	MACROLOPHUS SP.		4	2002/08	5
NETHERLANDS	MACROLOPHUS SP.		4	2002/10	5
NETHERLANDS	MACROLOPHUS SP.		4	2002/11	2
NETHERLANDS	MACROLOPHUS SP.		4	2003/05	1
NETHERLANDS	MACROLOPHUS SP.		4	2003/07	2
NETHERLANDS	MACROLOPHUS SP.		4	2003/08	4
NETHERLANDS	MACROLOPHUS SP.		4	2004/06	1
NETHERLANDS	MACROLOPHUS SP.		4	2004/09	6
NETHERLANDS	MACROLOPHUS SP.		4	2004/10	7
NETHERLANDS	MACROLOPHUS SP.		4	2004/11	5
NETHERLANDS	MACROSIPHUM SP.	(FRUIT)	4	1998/07	1
NETHERLANDS	MAMESTRA BRASSICAE	(FRUIT)	4	1998/10	1
NETHERLANDS	MIKANIA SP.		4	1997/01	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	1	1996/11	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	1	1997/12	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	1	1999/11	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	2	2004/09	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	3	1995/07	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	3	1995/09	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	3	1995/10	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	3	2001/11	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1995/11	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/06	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/07	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/08	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/09	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/10	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/11	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1996/12	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/01	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/07	5
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/08	17
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/09	13

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/10	28
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/11	14
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1997/12	8
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/07	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/08	6
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/09	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/10	7
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/11	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1998/12	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/06	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/07	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/08	7
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/09	6
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/10	6
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/11	7
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/12	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/06	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/07	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/08	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/09	7
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/10	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/11	5
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2000/12	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2001/07	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2001/08	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2001/09	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2001/10	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2001/11	7
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2001/12	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2002/01	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2002/08	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2002/09	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2002/10	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2002/12	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/06	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/07	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/09	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/10	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2003/11	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/04	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/05	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/06	1
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/08	4
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/09	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/10	3
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2004/11	2
NETHERLANDS	MIRIDAE, SPECIES OF	(FRUIT)	4	2005/01	1
NETHERLANDS	MIRIDAE, SPECIES OF	(LEAF)	4	1998/09	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1996/08	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1996/12	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1997/07	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1997/09	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1997/10	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1997/12	2
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1998/10	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1999/08	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	1999/09	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	2001/08	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	2001/09	3
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	2002/06	1
NETHERLANDS	MIRIDAE, SPECIES OF	(STEM)	4	2002/10	1
NETHERLANDS	MIRIDAE, SPECIES OF		1	1997/11	2
NETHERLANDS	MIRIDAE, SPECIES OF		4	1996/08	2
NETHERLANDS	MIRIDAE, SPECIES OF		4	1996/10	2
NETHERLANDS	MIRIDAE, SPECIES OF		4	1996/11	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	1997/06	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	1997/07	3
NETHERLANDS	MIRIDAE, SPECIES OF		4	1997/08	2
NETHERLANDS	MIRIDAE, SPECIES OF		4	1997/10	2
NETHERLANDS	MIRIDAE, SPECIES OF		4	1999/05	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	1999/06	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	1999/08	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	1999/09	3
NETHERLANDS	MIRIDAE, SPECIES OF		4	2000/07	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2000/08	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2000/10	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2000/11	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2001/09	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2001/10	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2001/11	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2002/06	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2002/09	3
NETHERLANDS	MIRIDAE, SPECIES OF		4	2003/07	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2003/10	1
NETHERLANDS	MIRIDAE, SPECIES OF		4	2003/11	2
NETHERLANDS	MIRIDAE, SPECIES OF		4	2004/09	2
NETHERLANDS	MYZUS SP.	(LEAF)	3	1993/06	1
NETHERLANDS	NESOSTELES SP.	(FRUIT)	4	1999/11	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1995/10	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	2	1995/07	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	3	1994/10	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1985/08	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1995/11	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1997/08	2
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1998/06	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	1998/11	2

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	2000/11	1
NETHERLANDS	NOCTUIDAE, SPECIES OF	(FRUIT)	4	2004/10	1
NETHERLANDS	NYSIUS SP.	(FRUIT)	4	2001/09	1
NETHERLANDS	ORTHOTYLINAE, SPECIES O	(FRUIT)	4	1997/11	1
NETHERLANDS	PLATYNOTA SP.	(FRUIT)	4	1997/09	1
NETHERLANDS	PLUSIINAE, SPECIES OF	(FRUIT)	4	1999/06	1
NETHERLANDS	PLUSIINAE, SPECIES OF	(FRUIT)	4	1999/09	1
NETHERLANDS	PLUSIINAE, SPECIES OF	(FRUIT)	4	2000/09	1
NETHERLANDS	PLUSIINAE, SPECIES OF	(FRUIT)	4	2000/12	1
NETHERLANDS	PLUSIINAE, SPECIES OF	(FRUIT)	4	2003/12	1
NETHERLANDS	PLUSIINAE, SPECIES OF	(LEAF)	4	1999/08	1
NETHERLANDS	PLUSIINAE, SPECIES OF		4	2003/08	1
NETHERLANDS	POLYDRUSUS SP.	(FRUIT)	4	2000/06	1
NETHERLANDS	PSEUDOCOCCUS SP.	(FRUIT)	4	2000/06	1
NETHERLANDS	PYRALIDAE, SPECIES OF	(FRUIT)	3	1995/07	1
NETHERLANDS	PYRAUSTINAE, SPECIES OF	(FRUIT)	4	1996/12	1
NETHERLANDS	STEMPHYLIUM SP.	(FRUIT)	7	1996/10	1
NETHERLANDS	TETRANYCHUS SP.		4	1999/08	1
NETHERLANDS	TETRANYCHUS SP.		4	2002/11	1
NETHERLANDS	TINGIDAE, SPECIES OF	(FRUIT)	4	2003/05	1
NETHERLANDS	TORTRICIDAE, SPECIES OF		4	1998/10	1
NETHERLANDS	TORTRICINAE, SPECIES OF	(FRUIT)	4	1998/11	1
NETHERLANDS	TRICHOPLUSIA SP.		4	1997/07	2
NETHERLANDS	TRYPODENDRON SIGNATUM	(FRUIT)	4	1998/11	1
NETHERLANDS	TYPHLOCYBINAE, SPECIES	(FRUIT)	4	2000/07	1
PANAMA	ACREMONIUM SP.	(FRUIT)	6	1989/10	1
PANAMA	ANASTREPHA SP.	(FRUIT)	6	1989/10	1
PANAMA	FUSARIUM SP.	(FRUIT)	6	1996/09	1
PANAMA	MARUCA VITRATA	(FRUIT)	6	1995/11	1
PERU	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	2003/08	1
PERU	ALEYRODIDAE, SPECIES OF	(LEAF)	4	1996/12	1
POLAND	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	2003/10	1
PORTUGAL	NOCTUIDAE, SPECIES OF	(FRUIT)	1	1993/06	1
PUERTO RICO	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	1990/01	1
PUERTO RICO	GRYLLUS SP.	(FRUIT)	4	2000/03	1
REPUBLIC OF CHI	ETIELLA SP.	(SEED)	4	1992/11	1
RUSSIAN FEDERAT	CECIDOMYIIDAE, SPECIES	(FRUIT)	1	1992/08	1
SAINT MARTIN	CLADOSPORIUM SP.	(FRUIT)	1	1985/01	1
SENEGAL	LEUCINODES ORBONALIS	(FRUIT)	1	1999/02	1
SOUTH AFRICA	CLADOSPORIUM SP.	(FRUIT)	5	1996/04	1
SOUTH AFRICA	CLADOSPORIUM SP.		6	1998/03	1
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	3	1999/01	1
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/01	1
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1997/02	1
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/02	2
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1998/12	1
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	1999/12	2
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/01	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2001/02	1
SPAIN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/02	1
SPAIN	AGROMYZIDAE, SPECIES OF		4	2001/02	1
SPAIN	CLADOSPORIUM OXYSPORUM	(FRUIT)	6	1994/11	1
SPAIN	CLADOSPORIUM SP.	(FRUIT)	6	1998/01	1
SPAIN	CLADOSPORIUM SP.		3	1999/01	1
SPAIN	MIRIDAE, SPECIES OF	(FRUIT)	4	1999/09	1
SPAIN	PHLAEOTHRIPIDAE, SPECIE	(FRUIT)	4	1997/12	2
SPAIN	STEMPHYLIUM SP.		6	1998/03	3
SPAIN	THEBA PISANA	(FRUIT)	6	1995/10	1
SPAIN	THEBA PISANA		4	1998/02	1
SURINAM	PILEMIA SP.	(FRUIT)	1	1988/08	1
THAILAND	ISCHAEMUM RUGOSUM	(SEED)	3	1992/09	1
UNITED KINGDOM(?)	AGROMYZIDAE, SPECIES OF	(FRUIT)	1	2002/12	1
UNITED KINGDOM	AGROMYZIDAE, SPECIES OF		6	1997/02	1
UNITED KINGDOM	STEMPHYLIUM SP.	(FRUIT)	6	1996/02	1
UNKNOWN	AGROMYZIDAE, SPECIES OF	(FRUIT)	4	2002/11	1
UNKNOWN	CURCULIONIDAE, SPECIES	(FRUIT)	1	2000/09	1
UNKNOWN	HELICOVERPA SP.	(FRUIT)	1	1991/01	1
UNKNOWN	HELICOVERPA SP.	(FRUIT)	6	1985/11	1
UNKNOWN	MACROLOPHUS SP.	(FRUIT)	4	2002/11	1
UNKNOWN	MACROLOPHUS SP.	(STEM)	4	2001/09	1
UNKNOWN	MIRIDAE, SPECIES OF	(FRUIT)	1	1998/08	1
UNKNOWN	TEPHRITIDAE, SPECIES OF	(FRUIT)	1	2000/09	1
VENEZUELA(?)	AGROMYZIDAE, SPECIES OF	(FRUIT)	6	1990/02	1
VENEZUELA(?)	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1987/11	1
VENEZUELA(?)	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1987/12	1
VENEZUELA(?)	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1988/10	1
VENEZUELA(?)	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1988/11	1
VENEZUELA(?)	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1989/06	1
VENEZUELA	AGROMYZIDAE, SPECIES OF	(FRUIT)	6	1991/06	1
VENEZUELA	CLADOSPORIUM SP.	(FRUIT)	6	1991/03	1
VENEZUELA	CLADOSPORIUM SP.	(FRUIT)	6	1998/03	1
VENEZUELA	CLADOSPORIUM SP.	(FRUIT)	6	1998/09	1
VENEZUELA	COPITARSIA SP.	(FRUIT)	6	1991/05	1
VENEZUELA	CURCULIONIDAE, SPECIES	(FRUIT)	6	1988/06	1
VENEZUELA	CURCULIONIDAE, SPECIES	(FRUIT)	7	1992/04	1
VENEZUELA	DIAPHANIA SP.	(FRUIT)	6	1992/03	1
VENEZUELA	DIPTERA, SPECIES OF	(FRUIT)	6	1989/10	1
VENEZUELA	GELECHIIDAE, SPECIES OF	(FRUIT)	3	1990/02	1
VENEZUELA	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1989/05	1
VENEZUELA	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1992/11	1
VENEZUELA	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1994/05	1
VENEZUELA	GELECHIIDAE, SPECIES OF	(FRUIT)	6	1994/08	1
VENEZUELA	HOMOEOSOMA SP.	(FRUIT)	6	1990/05	1
VENEZUELA	KEIFERIA SP.	(FRUIT)	6	1988/03	1
VENEZUELA	KEIFERIA SP.	(FRUIT)	6	1990/07	1
VENEZUELA	LEUCINODES ORBONALIS	(FRUIT)	6	1996/02	1

ORIGIN	PEST	LOCATION	WHERE	IntDate	TOTAL
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1985/01	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1985/11	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1985/12	2
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1986/01	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1986/02	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1986/08	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1986/12	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1987/01	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1987/05	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1987/11	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1989/01	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1992/08	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1993/04	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1993/09	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1993/12	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1997/07	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1997/09	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	1998/08	1
VENEZUELA	NEOLEUCINODES ELEGANTAL	(FRUIT)	6	2004/08	1
VENEZUELA	NEOLEUCINODES ELEGANTAL		7	1996/08	1
VENEZUELA	NEOLEUCINODES SP.	(FRUIT)	6	1986/10	1
VENEZUELA	NEOLEUCINODES SP.	(FRUIT)	6	1989/10	1
VENEZUELA	PHTHORIMAEA SP.	(FRUIT)	6	1988/01	1
VENEZUELA	PYRAUSTINAE, SPECIES OF	(FRUIT)	6	1994/09	1
VENEZUELA	STEMPHYLIUM SP.	(FRUIT)	6	1998/03	1