Importation of *Solanum melongena* fruits for Consumption From El Salvador and Nicaragua into the United States

Qualitative, Pathway-Initiated Pest Risk Assessment

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Agency Contact:

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A. Introduction

This pest risk assessment was prepared by the Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture (USDA) to examine plant pest risks associated with the importation into the United States of fresh eggplant, *Solanum melongena*, grown in El Salvador and Nicaragua. This is a qualitative pest risk assessment, that is, estimates of risk are expressed in qualitative terms such as high or low as opposed to numerical terms such as probabilities or frequencies.

International plant protection organizations (*e.g.*, North American Plant Protection Organization (NAPPO), International Plant Protection Convention (IPPC) of the United Nations Food and Agriculture Organization (FAO)) provide guidance for conducting pest risk analyses. The methods we used to initiate, conduct, and report this plant pest risk assessment are consistent with guidelines provided by NAPPO, IPPC and FAO. Our use of biological and phytosanitary terms (*e.g.*, introduction, quarantine pest) conforms with the *NAPPO Compendium of Phytosanitary Terms* (NAPPO 1995) and the *Definitions and Abbreviations* (Introduction Section) in *International Standards for Phytosanitary Measures, Section 1—Import Regulations: Guidelines for Pest Risk Analysis* (FAO 1995).

Pest risk assessment is one component of an overall pest risk analysis. The *Guidelines for Pest Risk Analysis* provided by FAO (1995) describe three stages in pest risk analysis. This document satisfies the requirements of FAO Stages 1 (initiation) and 2 (risk assessment).

The Food and Agriculture Organization (FAO, 1995) defines "pest risk assessment" as "Determination of whether a pest is a quarantine pest and evaluation of its introduction potential". "Quarantine pest" is defined as "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" (FAO, 1995; NAPPO, 1995). Thus, pest risk assessments should consider both the likelihood and consequences of introduction of quarantine pests. Both issues are addressed in this qualitative pest risk assessment.

This document presents the findings of our qualitative plant pest risk assessment. We have not described in detail our assessment methods or the criteria we used to rate the various risk elements. Details of our methodology and rating criteria can be found in our "template" document: ***Pathway-Initiated Pest Risk Assessment: Guidelines for Qualitative Assessments, version 4.0*** (USDA, 1995); to obtain a copy of our template, contact the individual named in the proposed regulations.

B. Risk Assessment

1. Initiating Event: Proposed Action

This pest risk assessment is commodity-based, and therefore "pathway-initiated"; we initiated the assessment in response to the request for USDA authorization to allow imports of a particular commodity presenting a potential plant pest risk. In this case, the importation of fresh eggplant, *Solanum melongena*, grown in El Salvador and Nicaragua into the U.S. is a potential pathway for introduction of plant pests. Quarantine 56 (7 CFR §319.56) provides a general regulatory authority for importation of fruits and vegetables.

Solanum belongs to the Solanaceae family, which consists of about 75 genera and about 2000 species.

There are about 1500 species of *Solanum* described in temperate and tropical climates around the world. *Solanum melongena* although probably native to S. Asia has become a cultivated crop and is wide spread in the U. S. (Bailey, 1956).

2. Assessment of Weediness Potential of Eggplant

Table 1 shows how the results of our weediness screening for *Solanum melongena*. These findings did not require us to initiate a pest-initiated pest risk assessment.

Table 1: Process for Determining Weediness Potential of Commodity

Commodity: *Solanum melongena* L. (aubergine, eggplant, mad-apple, melongene)

Phase 1: *Solanum melongena* is widely grown in the United States.

Phase 2: Is the species listed in:

YES	*Geographical Atlas of World Weeds* (Holm, 1979)
NO	*World's Worst Weeds* (Holm, 1977)
NO	*Report of the Technical Committee to Evaluate Noxious Weeds; Exotic Weeds for Federal Noxious Weed Act* (Gunn & Ritchie, 1982)
NO	*Economically Important Foreign Weeds* (Reed, 1977)
NO	Weed Science Society of America list (WSSA, 1989)
NO	Is there any literature reference indicating weediness (*e.g.*, *AGRICOLA*, *CAB*, *Biological Abstracts*, *AGRIS*; search on "species name" combined with "weed").

Phase 3: Conclusion:

This species is grown commercially and in home gardens throughout the U.S. and does not pose a significant risk as a weed.

3. Previous Risk Assessments, Current Status and Pest Interceptions

3a. Decision history for eggplant:

Panama - 1988: commercial shipments permitted entry subject to inspection
Guatemala - 1988: commercial shipments permitted entry subject to inspection
Honduras - 1987: commercial shipments permitted entry subject to inspection
Costa Rica - 1985: commercial shipments permitted entry subject to inspection
Belize - 1936: shipments permitted entry subject to inspection

3b. Interceptions from fruits of eggplant from Central America FY 85-95:

ORIGIN	PEST	WHERE	TOTAL
COSTA RICA	CURCULIONIDAE, SPECIES OF	07	1
COSTA RICA	DIAPHANIA SP.	07	1
COSTA RICA	NEOLEUCINODES ELEGANTALIS	07	1
GUATEMALA(?)	NEOLEUCINODES ELEGANTALIS	07	1
HONDURAS	CONOTRACHELUS SP.	07	1
HONDURAS	DIPTERA, SPECIES OF	04	1
HONDURAS	LYCAENIDAE, SPECIES OF	04	1
HONDURAS	NEOLEUCINODES ELEGANTALIS	07	1

4. Pest List: Pests Associated with *Solanum melongena* in Central America

Table 2 shows the pest list for *Solanum melongena*. We generated the list after review of the information sources listed in (USDA, 1995). The pest list includes limited information on the distribution of each pest, pest-commodity association, and regulatory history.

Table 2: Pest List - *Solanum melongena* from Central America

Scientific Name, Classification	Distribution[1]	Comments[2]	References
Fungi			
Alternaria solani Sorauer (Deuteromycotina: Hyphomycetes)	CX,US	c	Wellman, 1977; Holliday, 1980; Farr *et al.*, 1989
Botrytis cinerea Pers.:Fr. (Deuteromycotina: Hyphomycetes)	Cosmopolitan	c	Wellman, 1977; Farr *et al.*, 1989
Cercospora melongenae C. Welles (Deuteromycotina: Hyphomycetes)	Cosmopolitan	a,c	Chupp, 1953; Farr *et al.*, 1989
Cercospora solani-torvi Frag. & Cif. (Deuteromycotina: Hyphomycetes)	CX	a	Chupp, 1953; Watson, 1971
Colletotrichum gloeosporioides (Penz.) Penz. & Sacc. in Penz. (Deuteromycotinia: Coelomycetes)	CX,US	c	Farr *et al.*, 1989; Wellman, 1977
Curvularia lunata (Wakk.) Boedijn (Deuteromycotina: Hyphomycetes)	CR,US	c	Gamboa, 1989; Farr *et al.*, 1989
Erysiphe cichoracearum DC. (Pyrenomycetes: Erysiphales)	CX,US	c	Wellman, 1977; Farr *et al.*, 1989

Fulvia fulva (Cooke) Cif. (Deuteromycotina: Hypomycetes)	Cosmopolitan	c	Wellman, 1977; Farr *et al.*, 1989
Fusarium oxysporum Schlechtemd:Fr. (Deuteromycotina: Hyphomycetes)	CX,US	c	Holliday, 1980; Gamboa, 1989, Farr *et al.*, 1989
Fusarium solani (Mart.) Sacc. (Deuteromycotina: Hyphomycetes)	CX,US	c	Wellman, 1977; Farr *et al.*, 1989
Glomerella cingulata (Stoneman) Spauld. & H. Schrenk (Pyrenomycetes: Phyllachorales)	Cosmopolitan	c	Farr *et al.*, 1989; Wellman, 1977
Leveillula taurica (Lev.) Arnaud (Pyrenomycetes: Erysiphales)	Cosmopolitan	c	Farr *et al.*, 1989
Meliola solani Stev. (Pyrenomycetes: Meliolales)	CR,SV,PA,PR	a	Wellman, 1977; Stevenson, 1975
Myrothecium roridum Tode:Fr. (Deuteromycotina: Hyphomycetes)	CX,US	c	Farr *et al.*, 1989; Holliday, 1980
Nematospora coryli Peglion (Hemiascomycetes: Endomycetales)	CX,US	c	Farr *et al.*, 1989
Peronospora tabacina D. B.Adam (Oomycetes: Peronosporales)	CX,US	c	Farr *et al.*, 1989; IMI, 1993
Phoma exigua Desmaz. (Deuteromycotina: Coelomycetes)	Cosmopolitan	c	Wellman, 1977; Farr *et al.*, 1989
Phoma terrestris E. M. Hans. (Deuteromycotina: Coelomycetes)	Worldwide	c	Farr *et al.*, 1989
Phomopsis vexans (Sacc. & Syd.) Harter (Deuteromycotina: Coelomycetes)	CX,US	c	Wellman, 1977; Farr *et al.*, 1989
Phyllosticta solani Ell. & G. Martin (Deuteromycotina: Coelomycetes)	CX,US	a,c	Farr *et al.*, 1989
Phytophthora cactorum (Lebert & Cohn) J. Schrot. (Oomycetes: Peronosporales)	SV,US	c	Wellman, 1977; Farr *et al.*, 1989
Phytophthora capsici Leonian (Oomycetes: Peronosporales)	CX,US	c	Holliday, 1980
Phytophthora infestans (Mont.)de Bary (Oomycetes: Peronosporales)	Cosmopolitan	c	Farr *et al.*, 1989
Phytophthora nicotianae Breda de Haan var. *parasitica* (Dastur) G. M. Waterhouse (Oomycetes: Peronosporales)	Cosmopolitan	c	Farr *et al.*, 1989
Pseudocercospora atromarginalis (Atk.) Deighton (Deuteromycotina: Hyphomycetes)	Subtropical & Tropical	c	Farr *et al.*, 1989
Puccinia substriata Ellis & Barth. (Basidiomycetes: Uredinales)	CX(?),US	a,c	Farr *et al.*, 1989; IMI, 1992
Rhizoctonia solani Kuhn (Deuteromycotina: Agonomycetes)	Cosmopolitan	c	Farr *et al.*, 1989
Rhizopus stolonifer (Ehrenb.:Fr.) Vuill. (Zygomycetes: Mucorales)	Cosmopolitan	c	Farr *et al.*, 1989
Rosellinia bunodes (Berk. & Br.) Sacc. (Pyrenomycetes: Sphaeriales)	CX	a	CMI, 1972; Holliday, 1980; EPPO, 1994; FAO, 1993
Sclerotinia sclerotiorum (Lib.) de Bary (Discomycetes: Helotiales)	Worldwide	a,c	Farr *et al.*, 1989

Sclerotium rolfsii Sacc. (Deuteromycotina: Agonomycetes)	Cosmopolitan	a,c	Farr *et al.*, 1989
Septoria lycopersici Speg. (Deuteromycotina: Coelomycetes)	Worldwide	a,c	Farr *et al.*, 1989
Stemphylium solani G. F. Weber (Deuteromycotina: Hyphomycetes)	Cosmopolitan	c	Farr *et al.*, 1989
Thanatephorus cucumeris (A. B. Frank) Donk (Basidiomycetes: Tulasnellales)	Worldwide	c	CMI, 1974; Holliday, 1980
Tricothecium roseum (Pers.:Fr.) Link (Deuteromycotina: Hyphomycetes)	Cosmopolitan	a,c	Farr *et al.*, 1989
Verticillium albo atrum Reinke & Berthier (Deuteromycotina: Hyphomycetes)	Cosmopolitan	a,c	Farr *et al.*, 1989
Viruses			
Cucumber mosaic virus	Worldwide	c	CMI, 1970; Shew & Lucas, 1991
Eggplant mosaic virus	US	c	CMI, 1973
Tobacco mosaic virus	Worldwide	c	CMI, 1975; Shew & Lucas, 1991
Tomato spotted wilt virus	CX,US	c	Jones *et al.*, 1991
Bacteria			
Agrobacterium tumefaciens (Smith & Townsend) Conn	CX,US	c	Bradbury, 1986
Burkholderia solanacearum (Smith) Yabuuchi, Kosako, Oyaizu, Yano, Hotta, Hashimoto, Ezaki & Arakawa	CX,US	c	IMI, 1994
Clavibacter michiganensis subsp. *sepedonicus* (Spieckermann & Kotthoff) Davis, Gillaspie, Vidaver & Harris	CR,PA,US	c	Bradbury, 1986
Erwinia carotovora subsp. *carotovora* (Jones) Bergey	CX,US	c	Gamboa, 1989; Bradbury, 1986
Pseudomonas syringae pv. *tabaci* (Wolf & Foster) Young, Dye & Wilkie	CR,US	c	Gamboa, 1989, Bradbury, 1986
Xanthomonas campestris pv. *vesicatoria* (Doidge) Dye	CX,US	c	Bradbury, 1986
Insects			
Acanthocephala bicoloripes (Stal) (Heteroptera: Coreidae)	CX	e	Saunders *et al.*, 1983
Acanthocephala femorata (Fabricius) (Heteroptera: Coreidae)	GT,US	a,c	Henery & Froeschner, 1988
Agallia albidula Uhler (Homoptera: Cicadellidae)	CX,PR,US	a,c (vectors?)	Metcalf, 1966; Saunders *et al.*, 1983; Matorell, 1976
Agallia lingula Van Duzee (Homoptera: Cicadellidae)	CX,US	a,c	Metcalf, 1966; Saunders *et al.*, 1983

Agallia modesta Osborn & Ball (Homoptera: Cicadellidae)	CX	a	Metcalf, 1966; Saunders *et al.*, 1983
Agrosoma placetis Medler (Homoptera: Cicadellidae)	CX	a	Saunders *et al.*, 1983
Agrosoma pulchella Guerin (Homoptera: Cicadellidae)	CX	a	Saunders *et al.*, 1983
Aleurotrachelus trachoides (Back) (Homoptera: Aleyrodidae)	CX,PR,FL	a,c,f	Saunders *et al.*, 1983; IIE, 1991; Oakley, 1948; Martorell, 1976; Mound *et al.*, 1978; Nakahara, 1996
Anthonomus eugenii Cano (Coleoptera: Curculionidae)	CX,US	c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993; Burk & Woodruff, 1980
Anthonomus pulicarius Boheman (Coleoptera: Curculionidae)	CX,PR	a	Saunders *et al.*, 1983; Oakley, 1948; Wolcott, 1923; EPPO, 1994; FAO, 1993
Anthonomus varipes Duval (Coleoptera: Curculionidae)	CX	a	Saunders *et al.*, 1983
Antianthe expensa (Germar) (Homoptera: Membracidae)	CX,US	c	Saunders *et al.*, 1983; Maes, 1988
Antianthe humilis Fowler Homoptera: Membracidae)	CX,US	c	Saunders *et al.*, 1983; Stoetzel, 1989
Aphis gossypii Glover (Homoptera: Aphididae)	Cosmopolitan	a,c	Saunders *et al.*, 1983; Blackman & Eastop, 1984
Arvelius albopunctatus (De Greer) (Heteroptera: Pentatomidae)	CX,US	c	Saunders *et al.*, 1983
Aulacorthum solani (Kaltenbach) (Homoptera: Aphididae)	Worldwide	c	Blackman & Eastop, 1984
Baris torquata (Olivier) (Coleopotera: Curculionidae)	CX,PR	a	Saunders *et al.*, 1983; Oakley, 1948; Wolcott, 1923
Bemisia tabaci (Gennadius) (Homoptera: Aleyrodidae)	CX,US	a,c,y	Saunders *et al.*, 1983; IIE, 1986
Caldwelliola reservata (Fowler) (Homoptera: Cicadelidae)	CX	a	Saunders *et al.*, 1983
Catagonia miniaticeps Fowler (Homoptera: Cicadellidae)	CX	a	Saunders *et al.*, 1983
Coccus viridis (Green) (Homoptera: Coccidae)	CR,SV,GT,HN,NI,PA,US(Florida, Puerto Rico)	a,n,CFR 318.13	McGuire & Crandall, 1967; Martorell, 1976; EPPO, 1994; FAO, 1993
Colaspis prasina Lefevre (Coleoptera: Chrysomelidae)	CX	a	Saunders *et al.*, 1982
Contarinia lycopersici Felt (Diptera: Cecidomyiidae)	CX	a	Oakley, 1948; Saunders *et al.*, 1983
Corythaica cyathicollis (Costa Lima) (Heteroptera: Tingidae)	CX,PR	a	Saunders *et al.*, 1983; Oakley, 1948
Corythucha gossypii (Fabricius) (Heteroptera: Tingidae)	CX,US	a,c	Henry & Froeschner, 1988

Delia platura (Meigen) (Diptera: Anthomyiidae)	CX,US	a,c	Saunders *et al.*, 1983; CIE, 1985
Diabrotica balteata Leconte (Coleoptera: Chrysomelidae)	CX,US	c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Diabrotica undecimpunctata Mann. (Coleoptera: Chrysomelidae)	CX,US	c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Diabrotica undecimpunctata howardi Barber (Coleoptera: Chrysomelidae)	CX,US	c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Diaphania nitidalis (Stoll) (Lepidoptera: Pyralidae)	SV,US	c	McGuire & Crandall, 1967; Borrow, 1976
Diaprepes abbreviatus (L.) (Coleoptera: Curculionidae)	CX,US	a,g	CIE, 1980; Saunders *et al.*, 1983
Edessa rufomarginata (De Greer) (Heteroptera: Pentatomidae)	CX	e	Saunders *et al.*, 1983; Oakley, 1948
Epicauta cinerea (Forster) (Coleoptera: Meloidae)	CX,US	a,c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Epicauta maculata (Say) (Coleoptera: Meloidae)	CX,US	a,c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Epicauta pestifera Werner (Coleoptera: Meloidae)	CX,US	a,c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Epicauta vittata (Fabricius) (Coleoptera: Meloidae)	CX,US	a,c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Epilachna varivestis Muls. (Coleoptera: Coccinellidae)	CX,US	a,c	Kranz *et al.*, 1977
Epitrix cucumeris Harris (Coleoptera: Chrysomelidae)	CX,US	c,e	Saunders *et al.* 1983, Metcalf & Metcalf, 1993
Epitrix fasciata (Blatchley) (Coleoptera: Chrysomelidae)	CX,US	c,e	CIE, 1981; Saunders *et al.*, 1983
Epitrix fuscata (Jacq. Du Val) (Coleoptera: Chrysomelidae)	GT?	a	Saunders *et al.*, 1983; Chemsak & Linsley, 1982
Epitrix hirtipennis (Melsheimer) (Coleoptera: Chrysomelidae)	CX,US	c	Saunders *et al.*, 1983 , Metcalf & Metcalf, 1993
Euphoria geninata (Chevrolat) (Coleoptera: Scarabaeidae)	GT,PA	a	Saunders *et al.*, 1983; Arnett, 1983
Euschistus crenator (Fagricius) (Heteroptera: Pentatomidae)	CX,US	c,e	Henry & Froeschner, 1988
Euschistus obscurus (Palisot) (Heteroptera: Pentatomidae)	CX	e	Saunders *et al.*, 1983; Henry & Froeschner, 1988
Faustinus apicalis (Faust.) (Coleoptera: Curculionidae)	CO,CR,HN.NI,PA	z_e	Saunders *et al.*, 1983; Oakley, 1948; O'Brien & Wibmer, 1982; Borrero Fonseca & Zenner de Polania, 1991
Faustinus ovatipennis (Champion) (Coleoptera: Curculionidae)	GT,HN	z_e	Saunders *et al.*, 1983; Oakley, 1948; O'Brien & Wibmer, 1982

Faustinus rhombifer (Champion) (Coleoptera: Curculionidae)	HN,PA	z_e	Saunders *et al.*, 1983; Oakley, 1948; O'Brien & Wibmer, 1982
Faustinus subparalellus (Champion) (Coleoptera: Curculionidae)	CR,PA	z_e	Saunders *et al.*, 1983; Oakley, 1948; O'Brien & Wibmer, 1982
Halticus bracteatus (Say) (Heteroptera: Miridae)	CX,US	a,c	Henry & Froeschner. 1988
Helicoverpa zea (Boddie) (Lepidoptera: Noctuidae)	CX,US	c,z_e	Saunders *et al.*, 1983; IIE, 1993
Hortensia similis (Walker) (Homoptera: Cicadellidae)	CX,US	a,c	Metcalf, 1965; Saunders *et al.*, 1983; Tsai, 1974
Icerya purchasii Maskell (Homoptera: Margarodidae)	SV,GT,US	c	EPPO, 1995
Keiferia lycopersicella (Walsingham) (Lepidoptera: Gelechiidae)	CX,US	a,c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Leptinotarsa decemlineata (Say) (Coleoptera: Chrysomelidae)	CX,US	a,c	Saunders *et al.*, 1983; IIE, 1991
Leptinotarsa undecimlineata Stal (Coleoptera: Chrysomelidae)	CX,US	c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Leptoglossus phyllopus (L.) (Heteroptera: Coreidae)	CX,US	c,e	Saunders *et al.*, 1983; Henry & Froeschner, 1988
Leptoglossus zonatus (Dallas) (Heteroptera: Coreidae)	CX,US	c,e	Saunders *et al.*, 1983; Henry & Foreschner, 1988
Liriomyza sativae Blanchard (Diptera: Agromyzidae)	CX,US	c	Spencer, 1973; Spencer, 1990; EPPO, 1994; FAO, 1993
Liriomyza trifolii (Burgess) (Diptera: Agromyzidae)	Neotropics,US	c	Spencer, 1973; Spencer, 1990; EPPO, 1994; FAO, 1993
Macrosiphum euphorbiae (Thomas) (Homoptera: Aphididae)	CX,US	a,c	Saunders *et al.*, 1983; Blackman & Eastop, 1984
Macunolla ventralis (Signoret) (Homoptera: Cicadellidae)	CX	a	Saunders *et al.*, 1983
Manduca sexta (L.) (Lepidoptera: Sphingidae)	CX,US	c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Mechanitis isthmia Bates (Lepidoptera: Danaidae)	CX	a	Saunders *et al.*, 1983
Murgantia histrionica (Hahn) (Heteroptera: Pentatomidae)	CX,US	a,c	Saunders *et al.*, 1983; Henry & Froeschner, 1988
Myzus persicae (Sulzer) (Homoptera: Aphididae)	CX,US	a,c	Saunders *et al.*, 1983; Blackman & Eastopo, 1984
Neoleucinodes elegantalis (Guenee) (Lepidoptera: Pyralidae)	CR,GT,PA,PR	z_i	Saunders *et al.*, 1983; Chawkat, 1995
Nezara viridula (L.) (Heteroptera: Pentatomidae)	CX,US	c,e	CIE, 1970; Saunders *et al.*, 1983
Orthezia insignis Browne (Homoptera: Orthezidae)	CX,US	a,c	CIE, 1957; Saunders *et al.*, 1983

Phoebis sennae eubule (L.) (Lepidoptera: Pieridae)	Mexico,US	c	McGuire & Crandall, 1967, Hodges, 1983
Phthia picta (Drury) (Heteroptera: Coreidae)	CX,US	c,e	Henry & Froeschner, 1988
Phthorimaea operculella (Zeller) (Lepidoptera: Gelechiidae)	CX,US	c	Saunders *et al.*, 1983; CIE, 1967
Phyrdenus divergens (Germar) (Coleoptera: Curculionidae)	CR,GT,PA,US	c	Saunders *et al.*, 1983; O'Brien & Wibmer, 1982
Phyrdenus muriceus (Germar) (Coleoptera: Curculionidae)	Bz,CR,GT,HN,NI,US	c	Saunders *et al.*, 1983; Wibmer & O'Brien, 1986
Pilemia periusalis (Walker) (Lepidoptera: Pyralidae)	CX	a	Saunders *et al.*, 1983
Sibovia occatoria (Say) (Homoptera: Cicadellidae)	CX,US	a,c	Metcalf, 1965; Saunders *et al.*, 1983
Solenopsis geminata (F.) (Hymenoptera: Formicidae)	CX,US	c	CIE, 1958; Saunders, *et al.*, 1983
Spodoptera eridania (Cramer) (Lepidoptera: Noctuidae)	CX,US	c	Saunders *et al.*, 1983
Spodoptera frugiperda (J. E. Smith) (Lepidoptera: Noctuidae)	CX,US	c	Saunders *et al.*, 1983
Systena s-littera (L.) (Coleoptera: Chrysomelidae)	PA	a	Saunders *et al.*, 1983; Arnett, 1983
Thrips tabaci Lindeman (Thysanoptera: Thripidae)	CX,US	a,c,y	Saunders *et al.*, 1983; Nakahara, 1994
Trialeurodes vaporariorum (Westwood) (Homoptera: Aleyrodidae)	CX,US	a,c	Saunders *et al.*, 1983; Metcalf & Metcalf, 1993
Zinckenia fascialis (Cramer) (Lepidoptera: Pyralidae)	CX	a	Saunders *et al.*, 1983

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Tetranychus cinnabarinus (Boisd.) (Acari: Tetranychidae)	Cosmopolitan	c	Kranz *et al.*, 1977
Tetranychus desertorum Banks (Acari: Tetranychidae)	NI,US	c	Jeppson *et al.*, 1975
Tetranychus urticae Koch (Acari: Tetranychidae)	Cosmopolitan	c	Jeppson *et al.*, 1975

Nematodes

Belonolaimus gracilis Steiner	US	a,c	Esser, 1976; Anon, 1984
Meloidogyne arenaria (Neal) Chitwood	CX,US	a,c	Taylor & Sasser, 1978; Pinochet, 1987; Pinochet *et al.*, 1987, CIH, 1975
Meloidogyne hapla Chitwood	US	a,c	Evans *et al.*, 1993, CIH, 1974
Meloidogyne incognita (Kofoid & White) Chitwood	CX,US	a,c	Ferrer, 1968; Anon, 1984; Taylor & Sasser, 1978; Pinochet, 1987; Pinochet *et al.*, 1987, CIH, 1973

Meloidogyne javanica (Treub) Chitwood	CX,US	a,c	Taylor & Sasser, 1978; Pinochet, 1987; Pinochet *et al.*, 1987; CIH, 1972
Nacobbus aberrans Thorne & Allen	US	a,c	Anon, 1984; Evans *et al.*, 1993
Paratrichodorus minor (Colbran) Siddiqi	US	a,c	Anon, 1984; Evans *et al.*, 1993
Pratylenchus projectus Jenkins	US	a,c	Anon, 1984; Evans *et al.*. 1993
Rotylenchulus reniformis Linford & Oliveira	BZ,PA,US	a,c	MacGowan, 1977; Pinochet, 1987; Pinochet *et al.,* 1987; CIH, 1972

[1] Distribution legend: US = United States; FL = Florida; PR = Puerto Rico, CX = Central America; BZ = Belize; CO = Colombia; CR = Costa Rica; SV = El Salvador; GT = Guatemala; HN = Honduras, NI = Nicaragua; PA = Panama

[2] Comments: a = Pest mainly associated with a plant part other than the commodity.
c = Organism does not meet the geographic or regulatory definition for a quarantine pest
e = Although pest attacks commodity, it would not be expected to remain with the commodity (plant part) during processing
n = Pest is officially controlled by prior inclusion into Actionable Pest Dictionary.
y = Pest is a vector of plant pathogens
z_e= External feeder: Pest is known to attack or infest fruits of *Solanum melongena* and it would be reasonable to expect the pest may remain with the commodity during processing and shipping.
z_i= Internal feeder: Pest is known to attack or infest commodity and it would be reasonable to expect the pest may remain with the commodity during processing and shipping.

5. List of Quarantine Pests

Our list of quarantine pests for commercial shipments of *Solanum melongena* fruits from El Salvador and Nicaragua is provided in Table 3. Should any of these pests be intercepted on commercial (or any other) shipments of *Solanum melongena*, quarantine action may be taken.

Table 3: Quarantine Pests: Eggplant, *Solanum melongena* for consumption

Fungi	*Cercospora solani-torvi* Frag. & Cif.
	Meliola solani Stev.
	Rosellinia bunodes (Berk. & Br.) Sacc.
Arthropods	*Acanthocephala bicoloripes* (Stal)
	Agallia modesta Osborn & Ball
	Agrosoma placetis Medler
	Agrosoma pulchella Guerin
	Anthonomus pulicarius Boheman
	Anthonomus varipes Duval
	Anthonomus expensa (Germar)
	Baris torquata (Olivier)
	Caldwelliola reservata (Fowler)
	Catagonia miniaticeps Fowler
	Coccus viridis (Green)
	Colaspis prasina Lefevre
	Contarinia lycopersici Felt
	Corythaica cyanthicollis (Costa Lima)
	Edessa rufomarginata (De Greer)
	Epitrix fasciata (Blatchley)
	Euphoria geninata (Chevrolat)
	Euschistus obscurus (Palisot)
	Faustinus apicalis (Faust.)
	Faustinus ovatipennis (Champion)
	Faustinus rhombifer (Champion)
	Faustinus subparalellus (Champion)
	Macunolla ventralis (Signoret)
	Mechanitis isthmia Bates
	Neoleucinodes elegantalis (Guenee)
	Pilemia periusalis (Walker)
	Systena s-littera (L.)
	Zinckenia fascialis (Cramer)

6. Quarantine Pests Likely to Follow Pathway (*i.e.*, Quarantine Pests Selected for Further Analysis)

A description of the criteria that pests must satisfy to be considered for further analysis can be found in USDA (1995). We analyzed in detail only those quarantine pests that can reasonably be expected to move with eggplant fruits.

Table 4: Quarantine Pest Selected for Further Analysis: *Solanum melongena* fruits for consumption	
Arthropod	*Faustinus apicalis* (Faust.)

7. Economic Importance: Consequences of Introduction

APHIS is investigating the significance of *Faustinus apicalis* as well as other species of *Faustinus* occuring in Central America. The Service does not have sufficient information at the present time on the biology to determine the significance of the exotic species in this genus in El Salvador or Nicaragua. Under these circumstances the pest risk potential would be considered as high and mitigative measures should be considered.

8. Conclusion: Pest Risk Potential and Phytosanitary Measures

Eggplants are approved entry from the other Central America countries and other species of *Faustinus* occur there as well. The species are internal feeders and larval forms of Curculionidae have been intercepted but were not able to be identified to genus. Many polyphagous insects occur in Central America, several of them are quarantine pests and have been intercepted as hitchhikers with other commodities. If any quarantine pests are found action will be required.

Detailed examination and choice of appropriate sanitary and phytosanitary measures to mitigate pest risk is undertaken as part of the pest risk management phase and is not discussed in this document.

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