

# **Importation of Rhubarb Leaf Stalks, *Rheum rhabarbarum* from Guatemala into the United States**

**Qualitative, Pathway-Initiated Pest Risk Assessment**

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## Table of Contents

<b>A. Introduction</b> .....	<b>1</b>
<b>B. Risk Assessment Methods</b> .....	<b>1</b>
<b>1. Initiating Event: Proposed Action</b> .....	<b>1</b>
<b>2. Assessment of Weediness Potential of Rhubarb</b> .....	<b>2</b>
<b>3. Previous Risk Assessments, Current Status and Pest Interceptions</b> .....	<b>2</b>
<b>4. Pest List: Pests Associated with Rhubarb from Guatemala</b> ...	<b>3</b>
<b>5. List of Quarantine Pests</b> .....	<b>6</b>
<b>C. References</b> .....	<b>7</b>

## 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 rhubarb leaf stalks (*Rheum rhabarbarum*) grown in Guatemala**. This is a qualitative pest risk assessment, that is, estimates of risk are expressed in qualitative terms such as high or low rather than numerical terms such as probabilities or frequencies. The details of methodology and rating criteria can be found in: *Pathway-Initiated Pest Risk Assessment: Guidelines for Qualitative Assessments, version 4.0* (USDA, 1995); available from the individual named in the proposed regulations, or on our web site at [www.aphis.usda.gov/ppq/bats/bant](http://www.aphis.usda.gov/ppq/bats/bant).

International plant protection organizations, *e.g.*, North American Plant Protection Organization (NAPPO) and International Plant Protection Convention (IPPC) of the United Nations Food and Agriculture Organization (FAO), provide guidance for conducting pest risk analyses. The methods 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* (Hopper, 1996) and the *Definitions and Abbreviations (Introduction Section) in International Standards for Phytosanitary Measures, Section 1—Import Regulations: Guidelines for Pest Risk Analysis* (FAO 1996).

The *Guidelines for Pest Risk Analysis* provided by FAO (1996) describe three stages in pest risk analysis. This document satisfies the requirements of FAO Stages 1 (initiation) and 2 (risk assessment).

## B. Risk Assessment

### 1. Initiating Event: Proposed Action

This pest risk assessment is commodity-based, and therefore "pathway-initiated"; the assessment is in response to a request for USDA authorization to allow importation of a particular commodity presenting a potential plant pest risk. In this case, the importation of **fresh rhubarb leaf stalks (*Rheum rhabarbarum*) grown in Guatemala** is a potential pathway for introduction of plant pests. Rhubarb is a new commercial crop for Guatemala and the production area is Chimaltenango. Regulatory authority for the importation of fruits and vegetables from foreign sources into the U.S. is found in 7 CFR §319.56 .

## 2. Assessment of Weediness Potential of rhubarb, *Rheum rhabarbarum*

The results of the weediness screening for *Rheum x hybridum* Murray (Table 1) did not prompt a pest-initiated risk assessment.

**Table 1: Process for Determining Weediness Potential of Commodity**

**Commodity:** *Rheum x hybridum* Murray - Rhubarb (Polygonaceae)

**Phase 1:** Rhubarb is cultivated in the United States.

**Phase 2:** Is the species listed in:

NO *Geographical Atlas of World Weeds* (Holm et al., 1979)

NO *World's Worst Weeds* (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 Is there any literature reference indicating weediness (e.g., *AGRICOLA*, *CAB*, *Biological Abstracts*, *AGRIS*; search on "species name" combined with "weed").

**Phase 3: Conclusion:** No evidence of weediness traits were reported in the literature and the commodity is grown commercially and in home gardens within the U.S.

## 3. Previous Risk Assessments, Current Status and Interceptions

### 3a. Decision history for *Rheum rhabarbarum*

1924 - Mexico: Approved for entry subject to inspection at Border Ports.

1937 - Mexico: Approved for entry at all ports subject to inspection.

1989 - Colombia: Approved for entry at all ports subject to inspection.

### 3b. Interceptions from rhubarb FY 1985-96

None from the Western Hemisphere

#### 4. Pest List: Pests Associated with *Rheum*

The pest list in Table 2 was developed after a review of the information sources listed in USDA (1995). The list summarizes information on the distribution of each pest, pest-commodity association, and regulatory history.

<b>Table 2: Pest List - <i>Rheum</i> spp.</b>			
<b>Scientific Name, Classification</b>	<b>Distribution<sup>1</sup></b>	<b>Comments<sup>2</sup></b>	<b>References</b>
<b>Pathogens</b>			
<i>Alternaria alternata</i> (Fr.:Fr.) Keissl. (Fungi Imperfecti: Hyphomycetes)	GT,US	m,o	Conners, 1967; Mc Guire and Crandall, 1967
<i>Armillaria mellea</i> (Vahl:Fr.) P. Kumm. (Basidiomycetes: Agaricales)	GT,US	a,m,o	CMI, 1980; Farr <i>et al.</i> , 1989
<i>Botrytis cinerea</i> Pers.:Fr. (Fungi Imperfecti: Hyphomycetes) Telomorph: <i>Botryotinia fuckeliana</i> (de Bary) Whetzel	GT,US	m,o	CMI, 1974; Farr <i>et al.</i> , 1989
<i>Erysiphe polygoni</i> DC (Pyrenomycetes: Erysiphales)	GT,US	m,o	Creelman, 1964; Mc Guire and Crandall, 1967
<i>Phytophthora nicotianae</i> Breda de Hann var. <i>parasitica</i> (Dastur) G. M. Waterhouse (Oomycetes: Peronosporales)	GT,US	m,o	CMI, 1964; FAO, 1993; Moline and Lipton, 1987
<i>Pythium splendans</i> H. Braun (Oomycetes: Peronosporales)	GT,US	m,o	CMI, 1966; Farr <i>et al.</i> , 1989
<i>Rhizoctonia solani</i> Kuhn (Agonomycetes: Mycelia Sterilia)	GT,US	m,o	Farr <i>et al.</i> , 1989; Hernandez-Paz, 1975
<i>Sclerotium rolfsii</i> Sacc. (Agonomycetes: Mycelia Sterilia)	GT,US	m,o	CMI, 1992; Farr <i>et al.</i> , 1989
<i>Verticillium albo-atrum</i> Reinke and Berthier (Fungi Imperfecti: Hyphomycetes)	GT,US	m,o	CMI, 1986; Farr <i>et al.</i> , 1989
<b>Bacteria</b>			
<i>Erwinia carotovora</i> subsp. <i>carotovora</i> (Jones) Bergey <i>et al.</i>	Worldwide	m,o	Bradbury, 1986
<i>Pseudomonas solanacearum</i> (Smith) Smith	GT,US	m,o	Bradbury, 1986
<b>Viruses</b>			
Beet curly-top virus	GT?,US	o,v	Brunt <i>et al.</i> , 1996
<b>Arthropods</b>			
<i>Aphis craccivora</i> Koch (Homoptera: Aphidae)	GT?US	c,e,o,z	Blackman and Eastop, 1984; Essig, 1926

<i>Aphis fabae</i> Scopoli (Homoptera: Aphidae)	GT,US	c,e,o,z	Blackman and Eastop, 1984; Mitchell and Dean, 1978
<i>Macrosiphum euphorbiae</i> (Thomas) (Homoptera: Aphidae)	Worldwide	c,e,o	Blackman and Eastop, 1984; Mitchell and Dean, 1978
<i>Myzus persicae</i> (Sulzer) (Homoptera: Aphidae)	Worldwide	c,e,o	Blackman and Eastop, 1984; Mitchell and Dean, 1978
<i>Saissetia oleae</i> (Olivier) (Homoptera: Coccidae)	GT,US	c,e,o	CIE, 1952; Essig, 1926
<i>Tetranychus urticae</i> Koch (Acari: Tetranychidae)	GT,US	c,e,o	Marshall, 1988; Metcalf and Metcalf, 1993; Oatman, 1970; Ochoa <i>et al.</i> , 1994

<sup>1</sup> Distribution legend: GT = Guatemala; US = United States; CA = California; IA = Iowa; IL = Illinois; MA = Massachusetts; MD = Maryland

- <sup>2</sup> Comments:
- a = Pest mainly associated with plant part other than commodity.
  - c = Listed in USDA's non-reportable dictionary as non-actionable.
  - e = Although pest attacks commodity, it would not be expected to remain with the commodity during processing.
  - g = Quarantine pest: pest has limited distribution in U.S. and is under official control as follows: pest listed by name in USDA's pest dictionary, official quarantine action may be taken on this pest when intercepted on this commodity.
  - h = Quarantine pest: pest has limited distribution in the U.S. and is under official control as follows: (1) pest listed by name in USDA's pest dictionary, official quarantine action may be taken on this pest when intercepted on this commodity and, (2) pest is a program pest.
  - m = The pest occurs within the PRA area and has been reported to attack the specified host species in other geographic regions; but has not been reported to attack the specified host species in the PRA area.
  - o = Organism does not meet the geographic or regulatory definition of a quarantine pest.
  - v = No specific reports of the pest from PRA area, but regional reports exist and the pest may be present in the PRA area.
  - z<sub>e</sub> = External pest: is known to attack or infest *Rheum* spp. and it would be reasonable to expect the pest may remain with the commodity during processing and shipping.
  - z<sub>i</sub> = Internal pest: is known to attack or infest *Rheum* spp. and it would be reasonable to expect the pest may remain with the commodity during processing and shipping.

## 5. List of Quarantine Pests

None of the quarantine pests of rhubarb are reported as occurring in Guatemala; therefore this pest risk assessment stops here. Commercial cultivation of rhubarb in Guatemala is a fairly recent event and this assessment may need to be revisited if future interceptions or newly develop pest problem indicate a need.

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