Movement of

Dill *(Anethum graveolens)*

from Puerto Rico

to other parts of the United States

A Qualitative, Pathway-Initiated Pest Risk Assessment

David K.Bachli, Entomologist
Laura D. Redmond, Plant Pathologist
United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Biological Assessment and Taxonomic Support
4700 River Road, Unit 133
Riverdale, MD 20737-1236

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A. Introduction

This pest risk assessment was prepared by the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA) to examine plant pest risks associated with the movement of fresh dill *(Anethum graveolens)* grown in Puerto Rico to other parts of the United States. 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 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).

Pest risk assessment is one component of an overall pest risk analysis. 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).

The Food and Agriculture Organization (FAO, 1996) defines "pest risk assessment" as "Determination of whether a pest is a quarantine pest and evaluation of its introduction potential." "A 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, 1996; Hopper, 1996). Thus, pest risk assessments should consider both the likelihood and consequences of introduction of quarantine pests. Both issues are addressed in this 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 this document, contact the individuals named on the front of this pest risk assessment or visit the web site at www.aphis.usda.gov/ppq/bats.

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 movement of a particular commodity presenting a potential plant pest risk. In this case, the movement of fresh dill (*Anethum graveolens*) grown in Puerto Rico to other parts of the United States is a potential pathway for introduction of plant pests. Regulatory authority for the movement of fruits and vegetables from Puerto Rico into other parts of the United States is found in 7 CFR §318.58.

2. Assessment of Weediness Potential of *Anethum graveolens*.

The results of the weediness screening for *Anethum graveolens* (Table 1) did not prompt a pest-initiated risk assessment.

Table 1: Process for Determining Weediness Potential of a Commodity

Commodity: ***Anethum spp.*** *(Apiaceae)*

Phase 1: ***Anethum graveolens*** L. (dill) is native to Western Asia and is naturalized in Europe and North America. Dill is widely cultivated in the United States. The other species is the genus is *Anethum sowa* Roxb. ex Fleming, a native of tropical Asia.

Phase 2: Is the genus listed in:

YES*	***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 & Ritchie, 1982)
NO	***Economically Important Foreign Weeds*** (Reed, 1977)
YES	Weed Science Society of America list (WSSA, 1989)
YES	Is there any literature reference indicating weediness (*e.g.*, ***AGRICOLA, CAB, Biological Abstracts, AGRIS***; search on "species name" combined with "weed").

Phase 3: Conclusion: Proceed with the pest risk assessment.

*Remarks: *Anethum graveolens* L.is listed in *A Geographical Atlas of World Weeds* as a common weed of Lebanon, Portugal, the former Soviet Union, and Spain.

The Weed Science Society of America considers *Anethum graveolens* a weed of current or potential importance in the United States.

Two articles were found regarding *Anethum graveolens* as a weed:

O.P. Gupta in Major weed problems of Libya. Tropical Pest Management. 1982, 28: 2, 165-169, discusses the weed flora of farmland and orchards in Libya and mentions that, "... a number of crucifers like Sinapis, Brassica, Eruca and Euclidium spp. and others like Anethum, Chrysanthemum, Silybum, Sonchus, Fagonia, Kochia and Chenopodium spp. were found dominating different agroclimatic zones and habitats."

J.D. MacDonald and L.D. Leach, in Evidence for an expanded host range of Fusarium oxysporum f. sp. betae, Phytopathology. 1976, 66: 7, 822-827, mention wild *Anethum graveolens* as among several weeds identified as symptomless carriers of F. oxysporum f. sp. betae in Oregon sugar beet fields.

3. Previous Risk Assessments, Current Status and Pest Interceptions

Decision History for *Anethum graveolens* from Puerto Rico

1985 - *Anethum graveolens* - whole plant (except roots) is enterable from Puerto Rico into all ports. Preclearance in San Juan is required.

Pest Interceptions on *Anethum graveolens* from Puerto Rico - FY85-95

PEST	HOST	ORIGIN
Epinotia aporema	*Anethum graveolens*	Puerto Rico
Noctuidae sp.	*Anethum graveolens*	Puerto Rico
Pentatomidae sp.	*Anethum graveolens*	Puerto Rico

4. Pest List: Pests Associated with *Anethum* spp. in Puerto Rico.

Table 2: Pests Associated With *Anethum* spp.			
ARTHROPODA			
Pest	Distribution[1]	Comment [2]	References
Epinotia aporema (Walsingham) Lepidoptera: Tortricidae	PR, US	b, m, n	PPQ Interception; Zhang, 1994
Noctuidae sp. Lepidoptera	PR	l, n	PPQ Interception
Pentatomidae sp. Coleoptera	PR	l, n	PPQ Interception
Spodoptera eridania (Cramer) Lepidoptera: Noctuidae	PR, US	c, o	EPPO database 1996; Zhang, 1994
PLANT PATHOGENS			
Rhizoctonia solani Kühn Fungi Imperfecti: Agonomycetes	PR, US	c, o	Farr *et al.,* 1989; Stevenson, 1975

[1] Geographical codes: PR- Puerto Rico, US - other parts of the United States

[2] Comments:
- b - Not likely to be a major plant pest.
- c - Listed in the USDA catalogue of intercepted pests as non-actionable.
- l - A single unconfirmed report lists this species (with no supporting evidence).
- m - Reported to occur in the PRA area but not on specified host.
- n - Listed in the USDA catalogue of intercepted pests as actionable.
- o - Organism does not meet the geographical and regulatory definition for a quarantine pest.

5. List of Quarantine Pests

Table 3: Quarantine Pests
Epinotia aporema (Walsingham) Lepidoptera: Torticidae

6. Quarantine Pests Likely to Follow Pathway

From the previous lists (Tables 2 and 3), there are no pests that are likely to travel with this commodity.

7. Phytosanitary Measures

Anethum graveolens from Puerto Rico is currently permitted entry into other parts of the United States. Should additional pests, not identified in this Risk Assessment, be intercepted, appropriate quarantine action will be taken.

C. Literature Cited

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