



USDA-APHIS-PPQ Upon Arrival Phytosanitary Irradiation Program

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Irradiation Program Types

Preclearance and Offshore

Irradiation of U.S. Imports in Country of Origin



Upon Arrival (Port of Entry)

Irradiation of U.S. Imports in United States

Domestic Quarantine

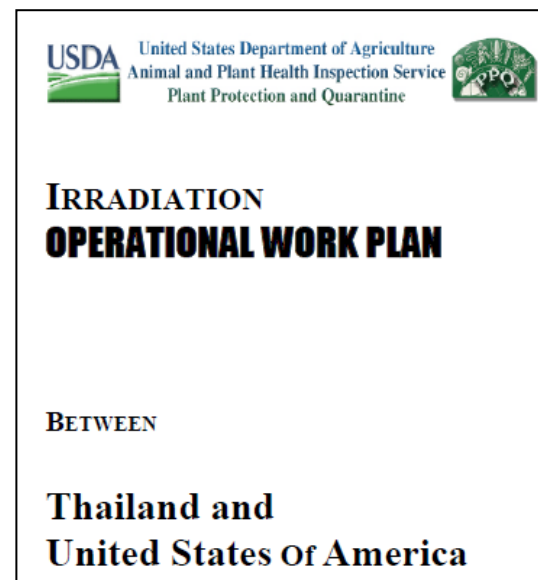
Irradiation for Domestic Movement out of Federal Quarantines

Exports

Irradiation of U.S. Exports

Import Regulatory Summary

- Market Access Granted
- Framework Equivalency Work Plan Signed
- Operational Work Plan Signed
- Commodity-Specific Addendum Signed



Import Regulatory Summary



- Facility Plan Approval
- Facility Certification
- Importer Compliance Agreement
- Importer Permit
- Packaging Approval
- Process Configuration Approval

Facility Approval and Certification



- Facility Location
- License Information
- Irradiator Information
- Safety Information
- Standard Operating Procedures (SOP)
- Personnel Information
- Dosimetry Information
- Facility Diagrams
- Commodity Segregation
- Facility Safeguarding Issues

Approved Facility Source Types

Gamma: ^{60}Co or ^{137}Cs emits photons during decay

E-beam: High energy electrons propelled from an electron gun

X-ray: High energy electrons are converted to X-rays (photons)





Importer Compliance Agreement

Compliance Agreement

- Agreement between APHIS and Importer
- Routing Information and Maps
- Procedures and Contact Information
- Recordkeeping Requirements
- 3-year cycle
- Importer must obtain compliance agreement before importer permit is issued

Please send all requests for compliance agreement to PPQ.Ops.Treatments@usda.gov



Importer Permit

Permit

- Required Document for Entry into U.S.
- Commodity and Country of Origin
- Port of Entry
- Routing Information and Maps
- 3-year cycle
- Importer must obtain compliance agreement before importer permit is issued

**Please send all requests for permits to
Olamiju.O.Olagbegi@aphis.usda.gov**

Packaging Approval



- Package Dimensions
- Package Material
- Pest Proofing
- Stored in IRADS

FDA maintains a list of approved materials for irradiation treatments

Phytosanitary Irradiation

Treatment response options:

- Mortality
- Sterilization
- Inactivity or Devitalization
- Inability to Emerge/Fly



Mortality is usually not the target response for APHIS treatments and live insects may remain after treatment

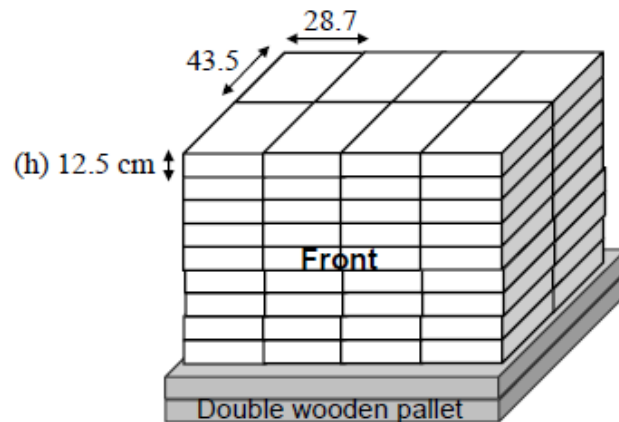
Pest Proof Packaging

As mortality is not the target response for APHIS treatments, live insects may remain after treatment



Process Configuration

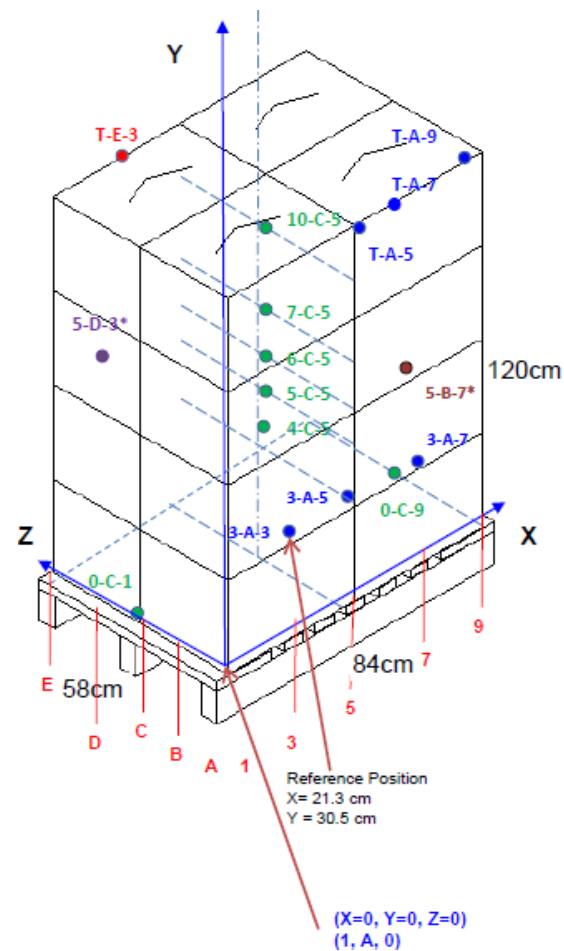
Packaging dimensions and orientation are critical when delivering an absorbed dose within a tight range



Dose Mapping

It is important to know what the absorbed dose range will be throughout the configuration

- Place dosimeters throughout load
- Focusing on areas expected to receive high and low absorbed doses
- Includes a reference location, R_f



Dose Mapping



Dose Mapping



Dose Mapping



Synergy Health (Thailand) Ltd

Longan in Basket (loose in basket, 72 baskets/pallet)

Configuration ID: 116	Box: Thai Litchi/Longan Basket
Commodity: Longan	Reference Location: FAO
Country of Origin: Thailand	Average Fruit Per Box: 500
Processing Speed: 1 m/s	Fruit Weight : 0 - 0 g
Maximum Box Density: 0.37 g/cm ³	Load Density: 0.34 g/cm ³
Box Weight (Min-Max): 5.7 - 5.8 kg	Target Dose: 400 Gy
	Rmin: 0.606 Rmax: 1.28
Stacking Description: 4 boxes wide x 9 boxes tall x 2 boxes deep. Boxes are plastic baskets with lids	
Comments: Partial loads are OK. Insect proof netting/mesh bags must be used.	
Approved by: Laura Jeffers (08/09/2012)	

Configuration Images



Configuration details entered into IRADS

Targeted Pests

Pest Name	Common Name	Minimum Dose
1. <i>Tephritidae Bactrocera correcta</i>	Guava Fruit Fly	150
2. <i>Tephritidae Bactrocera dorsalis</i>	Oriental Fruit Fly	150
3. <i>Coccidae Ceroplastes rubens</i>	Red Wax Scale	400
4. <i>Coccidae Drepanococcus chiton</i>	Wax Scale	400
5. <i>Pseudococcidae Dymicoccus neobrevipes</i>	Gray Pineapple Mealybug	400
6. <i>Pseudococcidae Maconelliococcus hirsutus</i>	Pink Hibiscus Mealybug	400
7. <i>Pseudococcidae Planococcus lilacinus</i>	Coffee Mealybug	400
8. <i>Pseudococcidae Planococcus minor</i>	Passionvine Mealybug	400
9. <i>Gracillariidae Conopomorpha cramerella</i>	Cocoa Pod Borer	400
10. <i>Tortricidae Cryptophlebia ombrodelta</i>	Macadamia Nut Borer	400
11. <i>Theclinae Deudorix epijarbas</i>	Cornelian	400



FAVIR

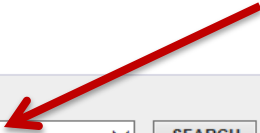
<https://epermits.aphis.usda.gov/manual/index.cfm>

Country/Region: Approved Name:

[Search by Scientific Name](#)

-- Select --

SEARCH



Options

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Date: Sep 4, 2013

Fruits and Vegetables Import Requirements (FAVIR)

Welcome to the APHIS Fruits and Vegetables Import Requirements (FAVIR) Database. This online reference allows easy access to regulations and information pertaining to the importation of fruits and vegetables into the United States, its territories, and possessions. Collectively, these regulations are commonly referred to as Quarantine 56, or Q56. Information on obtaining a permit for the importation of fresh and frozen fruits and vegetables can be obtained by going to the following website: [Fruit and Vegetable Import Permit](#).

All Countries List: The All Countries List is a Country Summary Report of commodities approved for import from any country.

A flag (⊖) indicates information that is intended for and available to an APHIS/CBP audience only.

Important Alerts:

	Short Description	Issued Date
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No Alerts found

Recent Changes:

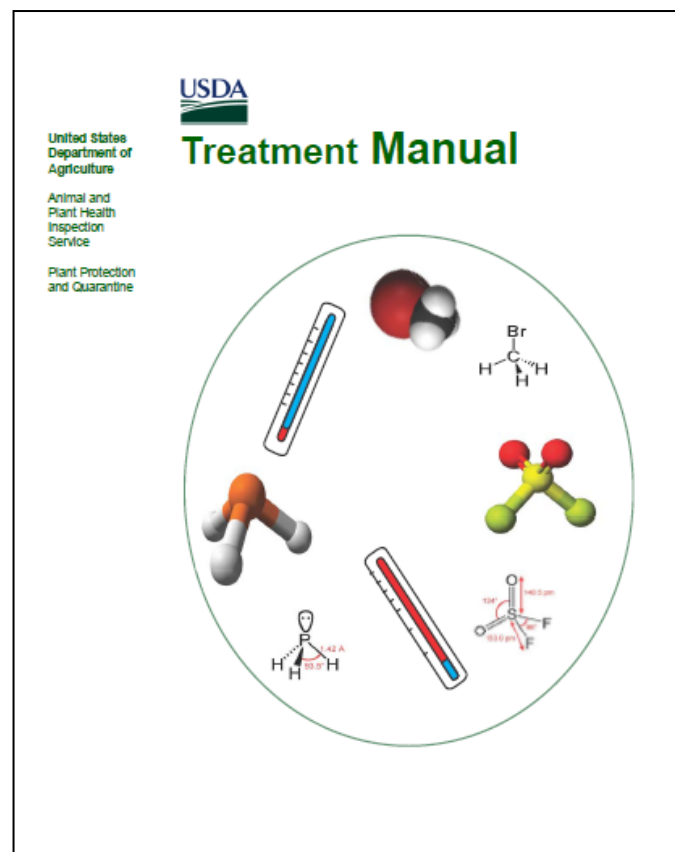
Change Type	Description	Change Date
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No Recent Changes found

PPQ Treatment Manual

http://www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf

- Import-driven Manual
- Treatment Schedules
- Irradiation Overview
- Pest Specific/Generic Doses
- Facility Certification
- Facility Audits
- Dosimetry
- Dose Mapping





PPQ Irradiation Treatment Site

USDA APHIS → Plant Health → Import into the US
→ Quarantine Treatments → Irradiation

USDA United States Department of Agriculture
Animal and Plant Health Inspection Service

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Irradiation Treatment

Last Modified: Jun 26, 2015

In order to meet U.S. entry requirements, certain fresh fruits and vegetables require the application of a quarantine treatment to mitigate pests that may pose a phytosanitary risk to US agriculture and natural resources. Irradiation is a viable option utilized for this purpose in some instances.

Click the links below for information to determine if an irradiation treatment is an option, and if applicable, the requirements to utilize irradiation treatments.

[I want to use irradiation as a treatment to import a commodity. Where do I start?](#)

Before a fresh fruit or vegetable becomes eligible for irradiation treatment into the U.S. it must first be approved for importation into the U.S. and listed in the Fruits and Vegetables Import Requirements Database (FAVIR). If a commodity is not listed in FAVIR then it is not currently eligible for entry and must be approved for importation via the Animal and Plant Health Inspection Service (APHIS) commodity import approval process. This process begins with a request from the Plant Protection Organization of the originating country. For more concerning the commodity import approval process, view the Commodity Import Request Process APHIS web page.

[I checked FAVIR. The commodity is eligible for entry, but irradiation is not listed as an approved treatment. What do I do?](#)

[I checked FAVIR. The commodity is eligible for entry, and irradiation is an approved treatment. What are my options?](#)

[Are there non-phytosanitary import requirements that I should be aware of?](#)

[I am interested in having an irradiation facility certified by APHIS to apply quarantine treatments for fresh fruits and vegetables. Where can I get more information?](#)



APHIS Certified Irradiation Facilities

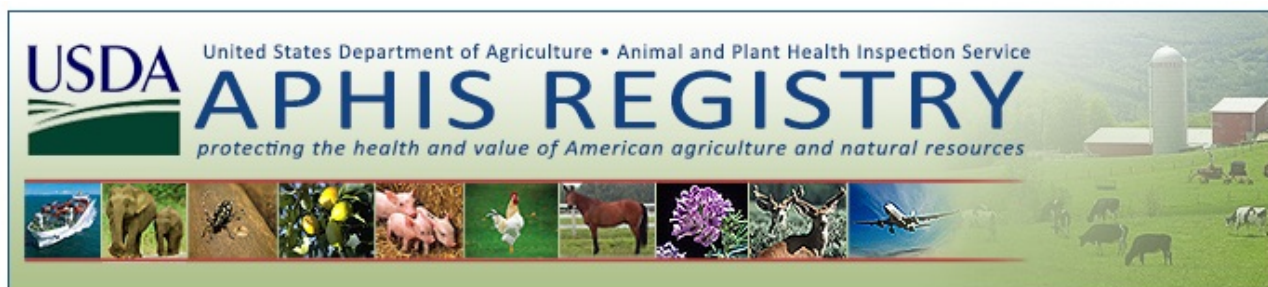
Facility Name	City	State	Phone	Web site
Calavo Grower's Inc. ¹ Hawaii Operations Hawaii Pride	Keaau	Hawaii	808-982-8880	
Gateway America	Gulfport	Mississippi	228-547-6546	www.gatewayamerica.net
National Center for Electron Beam Research	College Station	Texas	979-458-1640	http://ebeam.tamu.edu
Paina ¹	Kunia	Hawaii	808-428-0105	painahawaii.com
Sadex	Sioux City	Iowa	712-252-3505	www.sadexcorp.com

¹ Domestic irradiation only



PPQ Stakeholder Registry

<https://public.govdelivery.com/accounts/USDAAPHIS/subscriber/new>



Email Updates

To sign up for updates or to access your subscriber preferences, please enter your contact information below.

Subscription Type

*Email Address

Submit

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Your contact information is used to deliver requested updates or to access your subscriber preferences.



United States Department of Agriculture

Thank you!
LAURA.A.JEFFERS@USDA.GOV

