Status of Irradiation as a Phytosanitary Treatment

Alan Green
USDA/APHIS/PPQ
Plant Health Programs

Topics

1. Where we are now - current
2. What's in the pipeline - pending
3. Where we go from here - future

Framework Equivalency Workplan:
What it does

• Outlines official or legal requirements to allow use of irradiation as a phytosanitary measure and bilateral trade of irradiated commodities

• Allows us to harmonize the procedures for importing and exporting commodities using irradiation
WHY harmonize?

- Irradiation is a new Quarantine treatment for all countries –
- Many unique challenges and differences
  - Possibility of live pests arriving in commodity
  - No easy way to validate treatment on arrival

Irradiation is different from other quarantine treatments

**Positive side**

- Manages a wide range of pests
- Objective is not necessarily to kill the pest – thus requires low dose
- Commodity Non-specific - same dose for same pest

**Negative side**

- Concerns – consumer acceptance
- Shift in Point of Entry Inspections

What is Preclearance, and Why?

- Functional Equivalent of Port of Entry Inspection
- Entry Requirements for commodities met in country of origin
- Monitoring at POE (Document Verification)
- APHIS and NPPO personnel conduct the following to minimize pest risk:
  - Commodity inspections
  - Orchard and packinghouse registration
  - Review of safeguards
  - Treatment verification and certification
- Ensures system integrity based on International Standard
- High level of phytosanitary security through cooperation
FEWP Components

- Legal Authorities/Requirements
- Role of NPPOs
- Inspection, Monitoring and other activities e.g. safeguards
- Implementation Plan with Goals & Expectations

Further details provided in:
- Operational Work Plan &
- Facility Compliance Agreement

Currently 9 countries have signed the agreement:

- India, Laos, Malaysia, Mexico, Pakistan, Philippines, South Africa, Thailand, & Vietnam,
- Only India, Mexico, Thailand, & Vietnam are exporting irradiated precleared fruit to the US

Current Programs

- India
  - KRUSHAK facility (government owned) certified in April 2007
  - Alfonso mangoes
- Thailand
  - The Irradiation Center (TIC) certified October 2007; Isotron Thailand facility certified March 2008
  - Litchi, longan, mango, mangosteen, pineapple, rambutan,
- Viet Nam
  - Son Son Corporation certified August 2008; API certified July 2009
  - Dragon Fruit
- Mexico
  - Steigenics facility certified September 2008
  - Guava and mangoes
  - Citrus, carambola, and manzano peppers soon
Current Programs

- Total irradiated fruit shipped to the USA as of 7/2009: More than 5.7 Million Kg.

In the Pipeline

- Many Countries but more likely Australia, Brazil, (+ some in W. Africa, South America) may be the next ones to sign Domestic Irradiation

Lessons Learned

- Treatment is effective
- Customers accept irradiation
- Whatever is shipped sells
Lessons Learned

• Sea Freight is more profitable
• Plan the logistics
  – Irradiator design
  – Harvest ripeness
  – Cold chain and transportation
• Economy of scale
  – Diversity of commodities
  – Throughput

Research and Methods Development

• Fruit/Variety tolerance
• Shelf Life
  – Ideal stages of harvest ripeness
  – Storage and transportation temperature, humidity, and atmosphere conditions
  – Maritime and overland transportation
• Generic doses for mites and classes of insects
• Doses for specific pests

Potential for US exports

• Stone fruit
• Pome Fruit
• Potatoes
• Grapes
• Berries
• Grain
• Light Brown Apple Moth Hosts?
Domestic Irradiation

• APHIS is currently developing a workplan that would allow treatments to be conducted in the United States
• Work Plan will include:
  – Participant responsibilities
  – Logistics for moving product for treatment
  – Safeguarding
  – Facility Certification

Domestic Irradiation Imports

• Market Access – Complete PRA
• Irradiation – NPPO and APHIS need to confirm it is approved mitigation measure for commodity/pest.
• Aphis Certified Facility – CPHST approved.
• Logistics in the US handled by APHIS PPQ and Customs and Border Protection (CBP)
• Import Permits – Importers assume liability

Domestic Irradiation Exports

• Market Access – Complete PRA
• Irradiation – NPPO and APHIS need to confirm it is approved mitigation measure for commodity/pest.
• Aphis Certified Facility – CPHST approved.
• Logistics in the US handled by Exporter.
Future – Obstacles & challenges

- Program oversight costs
- Still looking for better ways to validate treatments – radiation sensitive and stable indicators
- In-country logistics
- Human safety issues
- US export potential still not realized
- Dosages for pest groups not established

Still don’t have an established dose for:

- Mites
- Mollusks
- Nematodes
- Pathogens
- Weed seeds

In Conclusion

- Opened new market access for prohibited products
- Public acceptance – not an issue
- Provided an alternative/substitutive treatment
- Offers potential for US exports
- Looking forward to IR facilities in the US