Educating IPM Practitioners –
Critical component of
sustainable agricultural systems

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IPM, Pest Risk Analysis and Safe Trade: Educational Challenges for Regulatory Professionals

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IPM, Pest Risk Analysis and Safe Trade: Educational Challenges for Regulatory Professionals and IPM Practitioners

We all need to understand each other!
**IPM practitioners** ...

use an ecological approach to pest management which combines ..

- understanding the causes of pest outbreaks,
- manipulating the crop/orchard ecosystem for pest control,
- monitoring pest populations and their life cycles
to determine if and when the use of pesticides and other tactics is indicated/justified/needed
"IPM Year" graphic and text courtesy of Cornell University.
Sustainable agriculture ..

“efficient production of safe, high quality agricultural products, in a way that protects and improves

• the natural environment
• the social and economic conditions of farmers, their employees and local communities, and

safeguards the health and welfare of all farmed species."
ECONOMY (PROFIT)

Diagram taken from - Sustainable Agriculture Initiative Platform
International Trade

In plants and plant products …

+ Can bring economic benefits to growers/producers
+ Can help reduce food insecurity
- Can bring unwanted and devastating plant pests
- Can disrupt IPM systems
Plant pests: What’s the risk?

Hazards
- Viruses
- Fungi
- Bacteria
- Arthropods
- Mollusks
- Nematodes
- Weeds

Assets at Risk
- Environment
- Food supply
- Agriculture and related industries
- Property
- Export markets
- Business operations
- Reputation or confidence in government
- Regulatory and contractual obligations

Potential Impacts
- Changes to forests and other natural areas
- Food insecurity
- Property damage
- Impacts to related industries (energy, tourism)
- Market closures
- Financial loss
- Loss of confidence in government
- Fines & penalties
- Loss of customers
APHIS-PPQ and Imports

• We regulate importation of plants and plant products under the authority of the Plant Protection Act
• We develop science-based documents that examine and evaluate the risks associated with plants and plant product imports
• The program safeguards U.S. agriculture and natural resources from the risks associated with the entry, establishment, or spread of plant pests
APHIS-PPQ and Exports

- We assist U.S. producers and trading partners in opening and retaining markets for plants and plant products
- Import permit – no analysis needed - PPQ provides trading country’s import requirements
- Analysis needed - country may require a pest list, pre-harvest or field management practices or procedures, post-harvest procedures, mitigation options, and other supporting information
Putting it all together..

- Protection from the entry, establishment and spread of new harmful pests is essential for food security
- Facilitation of trade is important for economic security
Putting it all together..

- **Safe trade** – protective measures are used to the extent justified by legitimate pest risk concerns (risk assessment)
Establishment

Origin

Events leading to introduction

1 2 3 4 5 6 7 8 9 10

Inspection

Destination

Events for spread

Widely distributed

Assessing risks – pest pathway

Introduction

Entry

Establishment

Spread

Time
Pathway of pest entry

Commodity production in field → Harvest → Post-harvest processing/packaging → Shipment to United States (specify mode of transport) → Commodity inspected/treated/tested at the border → Commodity distributed (include area if applicable)

- In-field monitoring/treatment
- Washing
- Waxing
- Culling
- Cooling
- Treating
- Packaging
- Inspection/Certification
- Infested commodity destroyed or re-exported
Factors influencing likelihood of entry

- Commodity traits
- Pest biology and behavior
- Industry practices
Probability of pest entry

Pest association with the pathway at origin

• Pest prevalence in source area
• Seasonality
• Cultural and management practices and harvest/post-harvest procedures at origin
• Occurrence of life stage that might/could be associated with commodities, containers, conveyances
Probability of pest entry

Pest survival during storage or transport

- Commercial procedures applied to consignments in country of origin
- Pest prevalence with consignment
- Speed and conditions of transport
- Duration of life cycle in relation to time in transport and/or storage
- Vulnerability of life-stages
Probability of pest entry

- Probability of pest surviving existing pest management procedures
- Probability of transfer to a suitable host
  - Time of year of trade
  - Intended use
  - Few or many destination points
  - Dispersal mechanisms, including vectors
IPM practitioners

• pest biology
• pest prevalence
• field /greenhouse management practices or procedures
• pre-harvest and post-harvest procedures
• mitigation options
• other supporting information
Tomato plantlet production inside exclusionary greenhouses (~30 days)

- Double insect screening including over ventilation ports
- Workers enter through sanitation stations
- Spring or well water is disinfected with chlorine and UV light
- Plantlets started from surface disinfested certified seeds
- Planted in approved growing media
- Plantlets are grafted inside plastic covered tunnels
- Greenhouse surveillance (Yellow sticky traps)
- Biological control

![Diagram](attachment://diagram.png)
Final thoughts

IPM

Pathways

Sustainable Agriculture

Pest Risk Analysis

Safe Trade
By working together..

• Through sharing of knowledge
  – Positive impact food security and economic security
• Ensure that all trade (domestic as well as international) is safe trade