Assessment of spread in the PRA area

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Assessment of the probability of introduction and spread (ISPM 11)

Pest introduction is comprised of entry and establishment.

Each pathway with which a pest may be associated from its origin to its establishment in the PRA area requires an analysis.

- For risk analyses that have been initiated for a specific pest, with no particular commodity or pathway under considetation, the potential of all probable pathways should be considered.
- The assessment of probability of spread is based primarly on biological consideration similar to those of entry and establishment.
- Reliable biological information should be obtained from the areas where it currently occurs.
- Plants for planting proposed for import may be the subject of PRA if there is a possibility that they may spread from the location where they are intended to grow and establish in the endangered area.

Probability of Spread

- Spread is defined as the expansion of the geographical distribution of a pest within an area.
- Spread potential is important in determining how quickly impact is expressed and how readily a pest can be contained.

It is needed to carefully compare conditions in the PRA area with those in the area where the pest is currently present and consult expert judgement to assess the probability of spread.

In assessing spread potential, must be considered

the species:

Means of spread

– How does spread occur?

Rate of spread

– How fast?

Magnitude of spread

– How far?

Rate and Magnitude of Spread

Probability of spread may influence

- Scale of potential impacts
- Urgency of potential responses
- Survey design
- Potential success of any future control or eradication program.

- An example: *Cydalima perspectalis* (Lepidoptera: Crambidae)



Factors influencing spread

- Suitability of environment
- Biology of the pest
- Presence of natural barriers
- Intended end use of the commodity
- Production / harvesting practices
- Vectors
- Natural enemies
- History elsewhere

Compare with other pests
An example: *Halyomorpha halys*

How to assess spread

- Comparative analysis
  - qualitative
- Predictive Models
  - semi-quantitative or quantitative
- Useful information sources
  - Case histories of comparable pests
  - Assessments and information from areas where the pest is present
  - Life history information
  - Site information
  - Expert opinion

Conclusions

Spread is influenced by:

- Life history
- Area of origin factors
- PRA Area factors
- Human factors

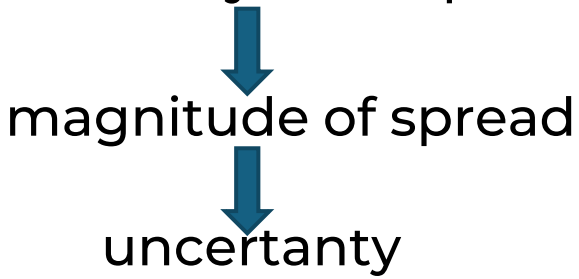
- It is useful to:
  - Compare to other pests
  - Compare to other localities/environments

Group exercise

- Group session - Prioritise and list spread pathways including natural and human assisted, rating the magnitude of spread and uncertainty

- Natural pathways
- Human assisted pathways

- Life history of the pest



Thank you!



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