Pest Risk Analysis (PRA)
Stage 2: Pest Risk Assessment

Pest Risk Analysis (PRA) Training
Uncertainty

Pest Risk Analysis (PRA) Training
Uncertainty

• Uncertainty is inherent to PRA
  – Using historical data to predict the future
  – Using data from one area to predict behaviour in another

• Complete information is rarely available
Uncertainty

• In ISPM No. 11
• Document areas of uncertainty and degree of uncertainty
• Necessary for transparency and to identify future research needs
Uncertainty

- Identifying uncertainty
- Reducing uncertainty
- Documenting uncertainty
Identifying uncertainty

• Sources of uncertainty include:
  – Incomplete data
  – Inconsistent or conflicting data
  – Imprecision or variability in data
  – Flaws in methodology
  – Subjective judgement
  – Lack of expertise
Sources of uncertainty

- **Data**
  - Missing, inconsistent, conflicting, imprecise

- **Judgement**
  - Subjective, time-limited, expertise-limited

- **Methodology**
  - Undeveloped, untested, inconsistent, not repeatable, pathways not considered or described inappropriately

- **Other**
  - Pest & human behaviour, random events, unexpected events, complexity of biological systems
Reducing uncertainty

- Collect more data
- Validate data with observations
- Statistical analysis
- Research
- Use original sources
- Expert consultation / peer review
## Degree of uncertainty

<table>
<thead>
<tr>
<th>Rating</th>
<th>Uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high</td>
<td>Little or no information – “Best guess”</td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Very low</td>
<td>Extensive, peer-reviewed information</td>
</tr>
</tbody>
</table>
Documenting uncertainty

- Documenting uncertainty contributes to transparency
  - Define terms
  - Describe all plausible scenarios
  - State assumptions

- Use your judgement
  - Experience brings confidence
## Uncertainty table

<table>
<thead>
<tr>
<th>Element</th>
<th>Rank</th>
<th>Uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability of Entry</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Probability of Establishment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability of Spread</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Consequences</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Indirect Consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Risk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

• Uncertainty is an inherent part of PRA

• Documenting uncertainties and assumptions in PRA is a part of being transparent (IPC principle)