Risk Management

Dealing with Pest Introductions

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Plant Health Consultancy
Action Recommendations
Outline

• Overview of eradication action and process
  – What happens after a Q pest has been diagnosed?
  – Key Issues for plant collections

• Case Studies
  – Glasshouse
  – Outdoor
Statutory Action

- Suspect symptoms - PHSI called
- Diagnosis of Q pest at CSL
- Initial risk assessment and action recommendations given by CSL
- Statutory action confirmed by PHSI(HQ)
- Local PHSI discusses options & issues Notice
- PHSI - revisit, re-sample & evaluate progress
- CSL provide further advice until eradication successfully completed
Eradication Action
Botanic Gardens/Collections

• wide range of specialist environments
• permanent plantings (+temporary displays)
• limited pest management tools
• public access
• high value plants
Statutory Action - Aims

- Defining the size of the infestation
- Preventing further spread
- Taking Eradication Action
- Evaluating progress
- Preventing further occurrence
Monitoring
Statutory Action

- Destruction of affected plants
- Containment measures
  - movement restrictions
- Precautionary treatments
  - physical, chemical, cultural, biological
Life-cycle of *Bemisia tabaci*
Using non-native biological control agents

Whitefly – *Bemisia tabaci*

- *Eretmocerus eremicus* tolerant of temps < 35°C
- CSL apply for licence to release *E. eremicus* at individual sites
Pesticide Options

• Short persistence, selective compounds
• CSL may seek additional emergency approvals
• Suitable application equipment
• Qualified operators
Opogona sacchari

- Mistaken for disease
- Softening of stems
- Entrance holes, bore meal and frass
## Treatment Options

*Opogona sacchari*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Location</th>
<th>Detection &amp; Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggs</td>
<td>Laid on the bark/stem</td>
<td>Impossible to detect</td>
</tr>
<tr>
<td>Larvae</td>
<td>Stem borers</td>
<td>Difficult to detect &amp; target</td>
</tr>
<tr>
<td></td>
<td>Nocturnal</td>
<td>Treat with <em>Steinernema</em> spp.</td>
</tr>
<tr>
<td>Pupae</td>
<td>Found on/in stem</td>
<td>Difficult to detect</td>
</tr>
<tr>
<td></td>
<td>Physical removal</td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>Small, nondescript</td>
<td>Light/pheromone traps</td>
</tr>
<tr>
<td></td>
<td>Nocturnal</td>
<td>Space treatment</td>
</tr>
</tbody>
</table>
Botanic Gardens/Collections

- establish regular monitoring & pest management plan
- avoid temporary displays of high risk plants (or manage carefully)
- consider routine biological control programme
- “softer” options can be more expensive
Preventing the Introduction of Quarantine Invertebrates into Plant Collections

- **S**ource carefully, seeking assurances of pest freedom from suppliers
- **I**sole imported plants and employ good quarantine practices
- **M**onitor plants carefully on arrival and establish good inspection & monitoring procedures.
- **P**recautionary Treatment may be necessary
- **L**abel and maintain records of plant importations
- **E**ducate and train staff