



Pests and Diseases in the Plantation Forestry Industry

Year 11 Agriculture

Case Studies:

Pest: Gypsy Moth (*Lymantria dispar dispar*)



1

Disease: Pine pitch canker (*Fusarium circinatum*)





Outcomes

A student:

P2.1 describes the biological and physical resources and applies the processes that cause changes in plant production systems

Students learn about:

The nature and impact on plant production systems of microbes, invertebrates and pests.

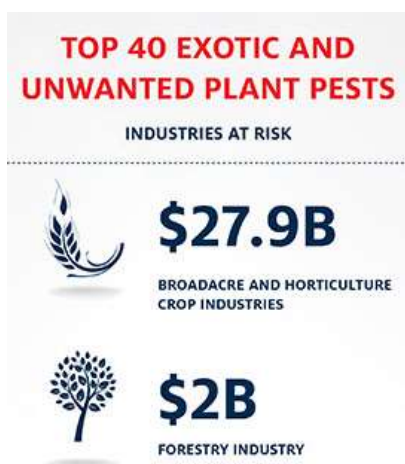
Students learn to:

- Outline one important disease and one pest for a selected crop/pasture.
- Evaluate methods that can be used to control or prevent plant pests and diseases.

Introduction

Australia is an island nation and fortunate to be naturally free from many pests and diseases that cause significant problems elsewhere in the world. Australian agriculture industries, including forestry, trade with domestic and international markets and require evidence of products being free from pests and disease in order to maintain market access for many trade partners.

Some pests and diseases can cause severe harm to agricultural industries, including forestry, reducing the quantity and quality of products and increasing production and management costs.





HOW DOES BIOSECURITY WORK?



PREVENTION

Preventing the entry of new pests and diseases into Australia (or into a new state or region) e.g. by including strict quarantine of materials entering the country/state e.g. surveillance of all container ships, imported products etc.

CONTROL

Quickly finding, containing & eradicating, where possible, new outbreaks before they spread;
Managing established pests & diseases to achieve eradication where possible, or at least minimise the harm to industry & environment



EQUIP

Ensuring that industry is equipped with appropriate surveillance, response and management strategies to respond to biosecurity threats and help to facilitate Australia's current global market access

REVIEW

Continual review and improvement to Australia's biosecurity mitigation measures, particularly as new information comes to light.





Activity One:

Pest case study - European Gypsy Moth

Use the links below to outline the appropriate information to complete your case study worksheet. (Either printed by your teacher or as a Word document).

1. Gypsy Moth Fact Sheet - <http://www.planthealthaustralia.com.au/wp-content/uploads/2015/07/Gypsy-moth-FS-Plantation-forestry.pdf>
2. Gypsy Moth Contingency Plan - <http://www.planthealthaustralia.com.au/wp-content/uploads/2013/03/Gypsy-moth-CP-2009.pdf>

N.B: The relevant section for management of the disease is in Section 5.3.

Activity Two:

Disease Case study - Pine pitch canker

Use the links below to outline the appropriate information to complete your case study worksheet. (Either printed by your teacher or as a Word document).

1. Pine pitch canker Fact Sheet - <http://www.planthealthaustralia.com.au/wp-content/uploads/2015/07/Pine-pitch-canker-FS.pdf>
2. Integrated pest management of Pine canker (California university) - <http://ipm.ucanr.edu/PMG/PESTNOTES/pn74107.html>



Activity Three

Complete the following table of terms:

| Term | Definition |
|-----------------------------|------------|
| Stem girdling | |
| Dieback | |
| Crown | |
| Resin | |
| Lesions | |
| Sporodochia | |
| Instars | |
| Broad spectrum insecticides | |
| Silviculture | |



References

1. Australian Government, Department of Agriculture and Water Resources Gypsy moth image, Viewed 28th April 2017
<http://www.agriculture.gov.au/pests-diseases-weeds/plant/exotic-gypsy-moth>
2. Plant Health Australia, Pine pitch canker image, Viewed 29th April 2017
<http://www.planthealthaustralia.com.au/pests/pine-pitch-canker/>
3. Australian Government, Department of Agriculture and Water Resources Viewed 29th April 2017
<http://www.agriculture.gov.au/pests-diseases-weeds/plant>
4. Plant Health Australia, Gypsy moth Fact sheet, Viewed 28th April 2017
<http://www.planthealthaustralia.com.au/wp-content/uploads/2015/07/Gypsy-moth-FS-Plantation-forestry.pdf>
5. Plant Health Australia, Gypsy moth Contingency Plan, Viewed 28th April 2017
<http://www.planthealthaustralia.com.au/wp-content/uploads/2013/03/Gypsy-moth-CP-2009.pdf>
6. Plant Health Australia, Pine pitch canker Fact sheet, Viewed 29th April 2017
<http://www.planthealthaustralia.com.au/pests/pine-pitch-canker/>
7. University of California, Department of Agriculture and natural resources, State wide Integrated Pest management Program, Viewed 29th April 2017
<http://ipm.ucanr.edu/PMG/PESTNOTES/pn74107.html>

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