MyPestGuide – the need, evolution and where to next

Presenter: Darryl Hardie (aka Dr Bug-a-Lugs)
Senior Entomologist, Department of Primary Industries and Regional Development, Western Australia
Darryl.Hardie@dpiwd.wa.gov.au

Colleagues: Laura Fagan, Rosalie McCauley, Rob Emery, Nichole Hammond, David Cook, Dominie Wright, David Cousins, Jeff Russell (Plant Health Australia), Nicolas Garel (Ngperceptive)
Summary

- Australian agricultural exports are worth $45 billion to our economy and contribute to global food security
- These exports are largely reliant from our freedom to many exotic pests
- In the past, government managed this risk by investment in extensive surveillance
- Government used the surveillance data to support area freedom claims from certain exotic pests, and these claims meant that Western Australian and Australian products could be sold to premium overseas markets
- These premium prices benefit all community members
- Unfortunately in recent years governments across Australia have decreased their investment in biosecurity surveillance
- This has increased the level of exposure to risks from harmful exotic pests, creating a need to transform pest surveillance with innovations that engage communities and industry in a partnership approach
• **National agreements**
  
  • IGAB - Intergovernmental Agreement on Biosecurity
    
    • Official control
      
      • NMDS – National Minimum Data Standards

  • EPPRD - Emergency Plant Pest Response Deed

  • NEBRA - National Environmental Biosecurity Response Agreement

• **WA legislation**

  • BAM - Biosecurity and Agriculture Management Act 2007
The Need - Technology

20th Century

21st Century

Apps/ mobile web
Naming and shaming Australia’s most unwanted

The top 43
Naming and shaming Australia’s most unwanted

The top 43
Surveillance needs

Need to increase surveillance outcomes

Specific surveillance
- Rely heavily on trained personnel and technology
- Expensive

General Surveillance
- Relies heavily on community and industry engagement
- Irregular
The Capacity of Groups within the Community to Carry out Plant Pest Surveillance Detection

Peter Mangano¹, Darryl Hardie*,¹, Jane Speijers¹, Richard Johnston¹, Maria J. de Sousa-Majer¹,³ and Glynn Maynard²

¹Department of Agriculture and Food, Western Australia, 3 Baron-Hay Court, South Perth, WA 6151, Australia; ²Office of the Chief Plant Protection Officer, Department of Agriculture, Fisheries and Forestry, GPO Box 858, Canberra, ACT 2601, Australia; ³CRC for National Plant Biosecurity, GPO Box 5012, Bruce, ACT 2617, Australia

Abstract: A set of trial exercises was run to compare pest surveillance capabilities of the Department of Agriculture and Food’s entomology and plant pathology staff (all with some degree of field survey experience) with persons from various community groups. Information indicating a comparable level of confidence in the use of community members for surveillance, to complement professional staff capacity, is provided.

Keywords: Community surveillance, International Plant Protection Convention, plant pest, SPS agreement, surveillance.
MyPestGuide as an identification tool

MyPestGuide Crops
Department of Agriculture and Food

MyPestGuide Crops lets you quickly identify pests and report your observations.

WHAT'S NEW
Updated splashscreens
Data validation with smartphones

Previously
• Government maintained expensive pest surveillance programs
• Subject matter expert interactions with the public involved a phone call, description of the pest and, occasionally, a sample being submitted
• These reports helped with early detection but the data had little value

Now
• Smartphone reporting adds veracity to ad hoc interactions
• Photos of specimens and situations can be submitted
• Reports have a date and time-stamp with contact details
• GPS coordinates of location are readily sent
• Transcription errors are eliminated
• Chain of evidence can be maintained with sample and trap IDs
• All reports are archived

Future
• Digital reports with integrity satisfy minimum surveillance data standards and will be used with Bayesian statistical analysis to defend market access by demonstrating or inferring pest absence.
Smartphone macro photography

800 clip-on lenses given away to agronomists and power users
- Adopt-a-tree (Myrtle rust survey)

- Adopt-a-trap (European wasp early warning)

- Pantry Blitz (Khapra beetle and other storage pest surveillance)

- Biosecurity Blitz (Yearly snapshot of invertebrates etc)

- TPP Adopt-a-trap (Tomato Potato Psyllid - 2017)

- Global Biosecurity Blitz (2018)

- Bug Blitz (Brown marmorated stink bug early detection 2018?)
Community engagement in plant pest surveillance

PANTRY BLITZ!

BE A PART OF THIS EXCITING SCIENCE ACTIVITY!

Get your FREE TRAP by registering online at:
www.agric.wa.gov.au/pantryblitz

national science week 2016
13-21 AUGUST 2016
• Citizen scientists downloaded our free photo reporting app for iPhone, Android – or they could report via a website
• 3,000 members of the community signed up for a sticky trap with khapra beetle lure
• 2,552 reports have been received to date four weeks
Pantries, pantries and more pantries
Over 2,500 reports received on the Pantry Blitz website
*Wahlgreniella nervata* (Hemiptera: Aphididae), or *Strawberry tree aphid*, was found heavily infesting *Arbutus unedo*. Images were initially sent through the MyPestGuide Reporter app.
*Shivaphis celti* (Asian woolly hackberry aphid).

It was first reported through PaDIS as severely affecting *Celtis* street trees in Vic park.

Fallen foliage sticks to footwear and becomes a nuisance to residents.
Sycamore lace bug, is a highly invasive pest insect of plane (sycamore) trees (*Platanus* sp.).

It is likely that its spread is facilitated by human activity, particularly vehicles along major transport routes.
MyPestGuide suite of tools

As of 23 September 2017 MyPestGuide apps have been downloaded 32,389 times. 35,961 reports made (1,921 demonstration)

3,644 Android downloads
8,920 iOS downloads
(2,350 from China)

3,847 Android downloads
3,410 iOS download
(1,490 Android from India, 2,250 iOS from China)

1,411 Android downloads
5,230 iOS downloads
(2,002 iOS from China)

775 Android downloads
2,720 iOS downloads
(2,250 iOS from China)

62 Android downloads
2,370 iOS downloads
(2,250 iOS from China)
Exposure on Gardening Australia

Is that insect beneficial or destructive? There's an app for that!

of gardeners to locate and report insects.

Carol Webster, Robyn Bray, Sharen Hamilton and 992 others like this.

967 shares


Jenny Gordon Avery Installed it as soon as I saw the story. Karyn they will review from Australia wide which is great.
We have a hockey stick
The future

MPG Pro, Video, Go national, Greater integration with social media
Thank you.

For more information about MyPestGuide go to:

mystepestguide.agric.wa.gov.au

Email: mystepestguide@dpird.wa.gov.au