ANNUAL DIAGNOSTICIANS' WORKSHOP 2020

Workshop report

Brisbane, QLD
3-4 March 2020

This workshop was organised by the Subcommittee on Plant Health Diagnostics and Plant Health Australia. Financial assistance was provided by the Australian Government Department of Agriculture, Water and the Environment

NATIONAL PLANT BIOSECURITY DIAGNOSTIC NETWORK

Australian Government
Department of Agriculture, Water and the Environment

Plant Health AUSTRALIA

Contents

Annual Diagnosticians' Workshop 2020 attendees

SUMMARY OF THE ANNUAL DIAGNOSTICIANS' WORKSHOP 2020

The ninth Annual Diagnostician's Workshop (ADW) was held on the 3-4 March 2020 at the Royal on the Park, Brisbane. There were 84 attendees this year from 19 organisations, covering all jurisdictions, the Australian Government, New Zealand Ministry of Primary Industries, Scion Research, the CSIRO, Sugar Research Australia, multiple universities and PHA. The increase in numbers this year is attributed to the added financial support from multiple organisations allowing more of their staff to attend. There has been a total of 298 National Plant Biosecurity Diagnostic Network (NPBDN) members who have participated in at least one ADW since 2012.

This event strengthens the **National Plant Biosecurity Diagnostic Network (NPBDN)** by sharing current diagnostic activities and experiences, as well as building strong connections between diagnosticians from across Australia and New Zealand.

The theme for ADW2020 was 'Over the Horizon – pests and tests'. The workshop objectives were to:

1. Look at current and past experiences to improve future diagnostics.
2. Bring people together to make connections, share information and build the NPBDN.
3. Facilitate opportunities for capability building, succession planning and collaboration.

ADW2020 included a range of presentations and workshop sessions designed to promote networking and sharing of experiences and knowledge. These included member talks, diagnostic residential reports, panel and workshop sessions and updates on activities being carried out nationally, such as the review of the National Plant Biosecurity Diagnostic Strategy, the introduction of the Priority List of Exotic Environmental Pests and learning about what their counterparts in surveillance are developing (regarding Surveillance Protocols and standards).

Highlights and key outcomes from the ADW2020 included:

- Insight into the potential uses and limitations of eDNA for diagnostics
- Update on the National Plant Biosecurity Diagnostic Strategy review with participants providing feedback on key elements of the strategy
- Shared learnings from NPBDN members who had recent Diagnostic Residential experiences
- Insights into specific diagnostic activities through NPBDN member talks
- Introduction to the diagnostic work carried out at the Sydney Royal Botanic Gardens
- Understanding diagnosticians needs from a reinvigorated Australian Plant Pest Database (APPD)
- Fresh insights into addressing some key diagnostic capability challenges in the biosecurity system
- Diagnostic experience and knowledge sharing, introduction of environmental biosecurity priorities, scoping of future activities and exploring opportunities across all ADW activities
- Shared knowledge and experiences regarding problem solving for new and old technologies
- A means for diagnosticians involved in the fall armyworm (*Spodoptera frugiperda*) response to provide appropriately stored specimens to each jurisdiction for their reference collections

National Priority Plant Pest Gaps Workshop

The National Priority Plant Pest (NPPP) Gaps Workshop was delivered on 4-5 March 2020 in the same location as the ADW. This project aligns with the **National Plant Pest Reference Collections Strategy** and is examining the availability of NPPPs in reference collections nationally and providing guidance on processes to fill gaps identified. This workshop was held in line with the ADW to take advantage of attendees being in the same location and make best use of funding available for the two workshops.

About the ADW and report

ADWs are an initiative of the **Subcommittee on Plant Health Diagnostics (SPHD)** and a recommendation from the **National Plant Biosecurity Diagnostic Strategy**. These workshops improve Australia's plant pest diagnostic capability and capacity through encouraging the sharing of expertise and the delivery of targeted training.

This report provides a summary of the ADW2020 for NPBDN members. Copies of the presentations will be available to NPBDN members through **portal.plantbiosecuritydiagnostics.net.au** and further information on the workshop can be obtained through the NPBDN Coordinator at **NPBDN@phau.com.au**.

ADW Agenda

DAY	TIMING	SESSION/ACTIVITY
Day 1 – Tuesday 3 March 2020	**10:30 am**	**Tea and coffee on arrival**
	11:00 am	• Welcome and introductions • Developments in the NPBDN • SPHD update • NDP project update • **NPBDN member talk:** Developing diagnostic assays for novel viruses detected in banana germplasm screening (Kathy Crew) • **NPBDN member talk:** Sticky trap processing (Ainsley Seago) • **Residential report:** Wasping in the USA (Sharon Zuiddam)
	12:35 pm	**Lunch**
	1:35 pm	• National Plant Biosecurity Diagnostics Strategy review update • **Invited Speaker:** Application of eDNA in diagnostics (Dianne Gleeson) • **Residential report:** Field and laboratory training of diagnostics of African Citrus Greening in South Africa (Tuan Nguyen) • **Residential report:** Improving virus diagnostic skills using next generation sequencing (Maxine Piggott) • Workshop photo
	3:00 pm	**Afternoon tea**
	3:30 pm – 5:00 pm	• **NPBDN member talk:** *Dickeya fangzhongdai* detection in imported Phalaenopsis orchids – Implications for Biosecurity (Jennifer Morrison) • **Panel Session:** *'Perspective throughout time'* – circumstances when use of emerging technologies reverted to use of conventional methods
	6:30 pm	**ADW dinner at Riverbar & Kitchen**
Day 2 – Wednesday 4 March 2020	**9:00 am**	• **Invited speaker:** It's not a blip, it's a CATAStrophy (James Hane) • NPBDN professional development update (Thomas Wallenius) • **Residential Report:** Bee pest-mite diagnostics (Lixin Eow) • **Residential Report:** Diagnostic techniques exchanged and assessed with a special focus on MALDI-TOF and bacterial pathogens (Ramez Aldaoud)
	10:30 am	**Morning tea**
	11:00	• Surveillance protocol/data standards project update (Susie Collins) • Environmental Priority Pest List (Susie Collins) • **NPBDN member talk:** Australian Biosecurity Collections Update (Jordan Bailey) • **Workshop session:** Australian Plant Pest Database (APPD) – update and future direction
	12:30 pm	**Lunch**
	1:30 pm	• **An introduction to a NPBDN member organisation:** Sydney Royal Botanic Gardens (Edward Liew) • **NPBDN member talk:** The risk of spotted lanternfly (Ainsley Seago) • **NPBDN member talk:** Genetic diversity within poleroviruses is getting complicated (Fiona Filardo) • ADW and NPBDN evaluation • ADW wrap-up and close
	3:00 pm	**Afternoon tea**
	3:30 pm	**NPPP Gaps Workshop**

ABSTRACTS FOR NPBDN MEMBER TALKS AND INVITED SPEAKERS

Invited Speakers

Application of eDNA for Diagnostics and Biosecurity

Dianne Gleeson, Jack Rojahn, Alejandro Trujillo-Gonzalez, Elise Furlan

EcoDNA Research Group, Institute for Applied Ecology, University of Canberra. Dianne.Gleeson@canberra.edu.au

Advances in DNA related technology in the form of environmental DNA (eDNA) hold significant potential for application in range of biosecurity settings. This method is now an emerging monitoring tool that has been successfully applied to various invasive species within Australia to date with further developments underway. The method enables both targeted species detection as well as assessments of whole communities through the use of metabarcoding and high-throughput DNA sequencing. Technological developments have the potential to transform a range of surveillance operations that have previously relied on labour intensive methods or have been intractable, particularly in pathogen diagnostics where morphological identification can be unequivocal. These methods have been applied to Phytophthora diagnostics and in surveys for rust pathogens. However, challenges in the uptake of this technology is predominantly the development of agreed standards and guidelines which are essential in the provision of adequate quality assurance. There are also limitations in sufficient reference databases and user-friendly bioinformatic interfaces to facilitate data analysis. Examples of eDNA detection for biosecurity applications will be presented, along with the current advances in eDNA technology such as real-time monitoring and point-of-site delivery.

Its not a blip, its a CATAStrophy: Re-examining the traditional biotroph-hemibiotroph-necrotroph classification system for plant pathogen infection modes using reproducible bioinformatic analysis based on CAZyme gene content.

James Hane

Centre for Crop and Disease Management, School of Molecular and Life Sciences, Curtin University. James.Hane@curtin.edu.au

Classification of plant pathogens into biotrophs, necrotrophs or hemibiotrophs is fundamental to plant pathology, however several species have been mis-classified. A reproducible bioinformatic method was developed – CAZyme-assisted training and sorting of -trophy, or CATAStrophy –profiles carbohydrate-active enzyme (CAZyme) gene content to predict the -trophic class of a species. This method targets genes within conserved and non-problematic genome regions, thus can be widely applied to novel species that have at least draft genome sequencing. CATAStrophy predicts 5 classes based that are approximate to traditional trophic classes: saprotrophs, monomertrophs (biotrophs & symbionts), polymertrophs (necrotrophs), mesotrophs (hemibiotrophs) and vasculartrophs (wilts, anthracnoses, rots, etc). The polymertroph class is subdivided into those of narrow and broad host ranges, and the mesotroph class is divided into inter- and extracellular sub-classes. CATAStrophy can further distinguish subtler differences between pathogen trophic phenotypes through secondary predictions, in cases where pathogens show characteristics of one or more classes.

The Plant Disease Diagnostic Unit at Sydney Royal Botanic Gardens

Edward Liew

Sydney Royal Botanic Gardens. Edward.Liew@rbgsyd@nsw.gov.au

Located at the Sydney Royal Botanic Gardens, the Plant Disease Diagnostic Unit (PDDU) provides a range of commercial plant and microorganism diagnostic services, including soil pathogen detection, pest and disease diagnosis, specific detection of wood decay fungi, tree root identification and general advice on disease survey and management. Ed Liew, manager of the Plant Pathology section at the Botanic Gardens, will give an overview of the PDDU, including clientele focus and lab diagnostic methodologies, highlighting some recent jobs of biosecurity significance. Ed will also present some of his current research work.

NPBDN Member Talks

The NPBDN member talks included in the ADW agenda were selected by the organising committee based on submitted abstracts. A copy of the abstracts for each talk is provided below.

JORDAN BAILEY

Australian Biosecurity Collections Update

Biosecurity and Food Safety, NSW Department of Primary Industries, Orange NSW

You've all heard about the various Biosecurity focused scientific collections around Australia (I hope!) but who are we really? Where are we? What do we do? And what do we need from you?

I am hoping to answer these questions and more in 15 mins! Join me, Curator for the NSW Plant Pathology and Mycology Herbarium, as I introduce you to our Collections network and update you all on the exciting projects and progress that we have planned.

KATHY CREW

Developing diagnostic assays for novel viruses detected in banana germplasm screening

Kathy Crew[1], Visnja Steele[1], Rong Wei[2], Sebastien Massart[2]
[1]Agriscience Queensland, Department of Agriculture and Fisheries, Brisbane, Australia
[2]AgroBioTech, University of Liege, Gembloux, Belgium

Banana germplasm imported into Australia and entering the International Musa Germplasm Collection undergo strict diagnostic testing for viral pathogens for both known and unknown viruses using specific and non-specific assays respectively. This screening has resulted in the detection of novel viruses by electron microscopy. High throughput sequencing (HTS) was used to obtain viral genomes for development of molecular assays for incorporation into the diagnostic suite.

A virus with 26 nm isometric particles from plants with an unusual growth habit was found to belong to an emerging novel family in the order *Picornavirales*. Few sequences of closely related viruses were available, and only the one infected banana accession is known. Degenerate RT-PCR primers were designed to conserved regions of the coat protein to maximise the robustness of the assay.

Very flexuous, striated, rod-shaped virions typical of the family *Closteroviridae* were detected in asymptomatic plants of five germplasm accessions. HTS of these accessions, plus additional research isolates, have resulted in eight assembled genomes representing three species of subgroup II ampeloviruses. Nucleotide identities within and between species are relatively low, and existing generic primers do not amplify all isolates. New diagnostic primers were designed to limited conserved regions of the translated HSP70h sequence.

FIONA FILARO

Genetic diversity within poleroviruses is getting complicated

Fiona F Filardo[1], Murray Sharman[1], John Thomas[2]
[1]Queensland Department of Agriculture and Fisheries, Brisbane, Australia.
[2]The University of Queensland, Brisbane, Australia

The international committee for the taxonomy of viruses (ICTV) states "Taxonomy lies at the uneasy interface between biology and logic". With the increase in full genome sequencing of viral isolates, within the *Polerovirus* family, a taxonomic conundrum has emerged. ICTV species demarcation criteria for poleroviruses state that a 10% amino acid difference within any gene product could constitute a new virus. Full genome sequencing of turnip yellows virus (TuYV) and phasey bean mild yellows virus (PBMYV) show the genomes of these viruses contain a large "spread" of genetic diversity, especially in open reading frame 5. This diversity has also been reported overseas and for other poleroviruses, and some researches have renamed some of the isolates as new viruses, while others suggest they are the same virus, just a different isolate. We will present our results, explain the genetic diversity found, and discuss how this effects diagnostics, taxonomy of poleroviruses and the implications to biosecurity.

JENNIFER MORRISON

Dickeya fangzhongdai detection in imported Phalaenopsis orchids – Implications for Biosecurity

Science and Surveillance Group, Department of Agriculture, Water and the Environment, Brisbane

Dickeya genera are commonly associated with soft rot disease in a range of ornamental hosts and have been listed in the top 10 most important bacterial plant pathogens, based on their economic impact (Alič et al. 2017). The Dickeya genus was formed in 2005 by the reclassification of former *Erwinia chrysanthemi* into six species; *D. chrysanthemi, D. dadantii, D. dianthicola, D. dieffenbachiae, D. paradisiaca* and *D. zeae*. It now also includes, *Dickeya solani, Dickeya aquatica* and *Dickeya fangzhongdai*.
Dickeya fangzhongdai was originally identified in 2016 from bleeding canker symptoms on pear trees but has since been shown to have a broad host range including ornamental, food crop plants and aquatic environments (Tian et al., 2016). Alič et al. (2017) confirmed *D. fangzhongdai* as the causative agent of soft rot in *Phalaenopsis* orchids.
In September 2019 *Dickeya fangzhongdai* was detected in imported Phalaenopsis orchids from Taiwan exhibiting soft rot symptoms. Biosecurity Plant Pathologists used multi-locus sequencing results in conjunction with Agdia serological testing measures to identity the pathogen, which is exotic to Australia. Further detections of *Dickeya fangzhongdai* have since been recorded at the border from this and other host commodities. The diagnostics associated with these interceptions along with the implications for Biosecurity will be discussed in the presentation. Particular mention will be made to the challenges faced with use of the commercial Agdia kits as a border diagnostic tool, namely with cross reactivity and false positive findings.

AINSLEY SEAGO

Sticky trap processing

Biosecurity and Food Safety, NSW Department of Primary Industries, Orange NSW

We all use sticky traps extensively, particularly for surveillance, but they come with challenges: unwanted bycatch of non-target organisms (sometimes including lizards or birds), and specimen damage if not handled correctly. By implementing a set of sticky trap best practices in the NSW DPI insect diagnostic lab, we have been able to remove insects from sticky traps effectively, successfully sequenced DNA from sticky trap specimens, and kept specimen damage to a minimum.

AINSLEY SEAGO

The risk of spotted lanternfly

Biosecurity and Food Safety, NSW Department of Primary Industries, Orange NSW

Like the brown marmorated stink bug (BMSB), the spotted lanternfly is an invasive insect pest from Asia that is currently spreading across the US, causing millions of dollars in crop damage and control costs. This colourful insect is polyphagous, but is a particularly serious pest of grapevines and stonefruit and prefers Mediterranean-like growing regions-- like NSW and Victoria. This talk outlines the risks of spotted lanternfly incursion, its economic impact, and how its different lift stages can be recognised in the field.

DIAGNOSTIC RESIDENTIAL REPORTING

The Diagnostic Residential Program (referred to as Diagnostic Residentials) provides funding for plant biosecurity diagnosticians to visit external laboratories to gain essential skills and knowledge relevant to their role and allow the sharing of ideas and practices. The purpose of the Diagnostic Residentials is to improve the national plant biosecurity diagnostic capability and capacity by improving the capability of individuals. The program also forms an integral component of the professional development framework for the NPBDN.

Applications for the 2020 Diagnostic Residential Program will open in the second half of 2020. Details will be published on the NPBDN website (plantbiosecuritydiagnostics.net.au).

Participants in the Diagnostic Residential Program share their outcomes at the ADW each year. Five Diagnostic Residential Reports were provided at the ADW. Table 1 provides a summary of each presenter, their institution and host institutions. Summaries of the work undertaken is provided in the abstracts below.

Table 1. *Recipients of Diagnostic Residential Projects who presented at the ADW2020 and their host institutions*

NAME	POSITION	ORGANISATION	HOST
Ramez Aldaoud	Research Scientist	Department of Jobs, Precincts and Regions, VIC	Andrew Daly, Plant Health Diagnostic Service EMAI, NSW DPI, Menangle, NSW
Lixin Eow	Research Scientist	Department of Jobs, Precincts and Regions, VIC	1) Dongmei Li, Senior Scientist Ministry for Primary Industries, Plant Health & Environment Laboratory. Auckland, NZ 2) John Roberts, Research Scientist CSIRO Canberra ACT
Tuan Nguyen	Senior Scientist	Queensland Department of Agriculture and Fisheries	Glynnis Cook, Programme Coordinator of Graft Transmissible Diseases. Citrus Research International, Mbombela, South Africa
Maxine Piggott	Principal Molecular Scientist	Department of Primary Industry and Resources, NT	Fiona Constable, Research Leader AgriBio, Centre for AgriBioscience, Agriculture Victoria Research, Bundoora, VIC
Sharon Zuiddam	Technical Officer	Department of Primary Industries and Regional Development, WA	Tatyana A Rand, Research Ecologist USDA-ARS Northern Plains Agricultural Research Lab, Montana, USA

RAMEZ ALDAOUD

Diagnostic techniques exchanged and assessed with a special focus on MALDI-TOF and bacterial pathogens

The aims of this residential were to: 1) exchange knowledge on the general diagnostic process of fungal and bacterial pathogens between the two diagnostic lab facilities, and 2) identify gaps, and exchange and/or acquire existing knowledge and techniques for improvement. Bacterial diagnostic techniques, including conventional and MALDI-TOF were examined in a greater depth and were compared using already identified bacterial cultures. Also, the residential included activities on fungal/bacterial pathogen isolations and identifications from some of the diagnostic samples received at EMIA at the time. The use of humid chamber for identification of fungal pathogens in seeds was also explored. This residential has established a platform for future exchanges and collaborations to further develop diagnostic techniques. MALDI-TOF is particularly interesting and is worth developing further by building a data base for bacterial pathogens for a start, and possibly to expand to include fungal pathogens as well.

LIXIN EOW

Bee pest-mite diagnostics

Lixin Eow from the invertebrate diagnostics laboratory based at AgriBio, Agriculture Victoria, will share her diagnostics laboratory residential experience (2019) to learn about honey bee pest-mite diagnostics, specifically for the mites exotic to Australia—Varroa, *Tropilaelaps*, and the tracheal mites *Acarapis woodi*. Lixin visited two laboratories in Australia and New Zealand that are responsible in the surveillance and diagnostics of exotic bee pest-mites— 1) CSIRO, Canberra, AUS; and 2) the Ministry of Primary Industry Laboratories, Auckland, NZ. Lixin also attended a field study at the Plant and Food Research, Hamilton, NZ, to observe live Varroa mites from bee hives. These residential activities helped strengthen Agriculture Victoria's diagnostics capability in priority bee pest-mite identification using updated morphological and molecular techniques.

TUAN NGUYEN

Field and laboratory training of diagnostics of African Citrus Greening in South Africa

African citrus greening, caused by *Candidatus* Liberibacter africanus (Laf) is one of the most destructive bacterial diseases for the citrus industry worldwide. However, due to a lack of Laf DNA material, PCR diagnostic assays for Laf detection have not been validated and used for diagnostic purposes in Australia. My residential involved travelling to South Africa to source infected materials to generate Laf positive control DNA and also to receive diagnostic training for African citrus greening from Dr Glynnis Cook in Citrus Research International. A total of 20 symptomatic leaf and fruit specimens were collected for DNA extractions and PCR testings and 12 samples were confirmed as positive for Laf. These DNA samples are currently stored in BRIP Herbarium and can be made available to other diagnostic laboratories upon requests. Completion of this residential has filled Australian capability and capacity gaps for diagnostics of African citrus greening, facilitating the early detection of the African citrus greening disease, in the event that the disease is introduced into Australia.

MAXINE PIGGOTT

Improving virus diagnostic skills using next generation sequencing

The detection and identification of viruses is crucial for successful crop production and biosecurity. The aim of this placement was to gain knowledge of current developments in molecular plant diagnostics using whole genome sequencing of plant viruses and to compare results obtained from PCR and sequencing with a NGS approach. Samples tested included samples diagnosed with a virus, samples with symptoms but no diagnosis to date and samples with suspected infection at low–titre that were difficult to identify.
Two different viruses were detected using NGS methods. A whole genome of *Cucumber green mottle mosaic virus* was sequenced from a weed sample and *Papaya ringspot virus-W* was sequenced from a snake gourd sample. Results showed that the whole genomes were obtained for the two samples that had previously provided a strong diagnostic result using PCR. Initial bioinformatics and assembly did not identify viral sequences in the low-titre and no diagnosis samples. Whole genome sequencing worked well for samples where viruses had been previously identified using a PCR approach but showed reduced sensitivity for virus detection in the low-titre samples, most likely due to the abundance of host RNA compared to the quantity of viral RNA in the sample.

SHARON ZUIDDAM

Wasping in the USA

Although native to America, the wheat stem sawfly (*Cephus cinctus*) is an agricultural pest across the United States. If this exotic wasp arrives in Australia it could establish rapidly due to its parthenogenesis ability and cause up to 80 % loss in crops. Our wheatbelt provides an optimal habitat and with their cryptic behaviours they could go undetected for up to three years after they arrive, making it difficult to find the origin of entry. How do we detect them? How do we identify them? How do we control them? Here I report on my diagnostic residential in Montana USA.

EVALUATION

Evaluation summary

Evaluation of the ADW 2020 and the broader NPBDN was undertaken through the use of Poll Everywhere (**www.polleverywhere.com**), allowing real-time outputs to be displayed and participants to interact with the evaluation. The information below provides a summary of the responses.

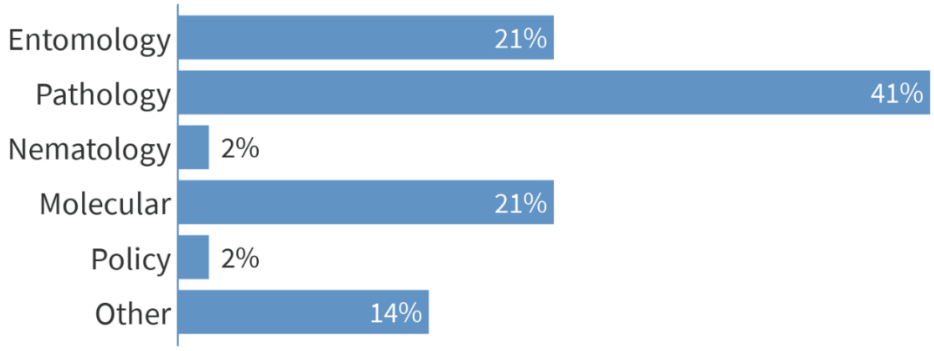
The ADW2020 was attended by a cross-section of NPBDN members with representation from all Australian states and territories and New Zealand. Over two thirds of the attendees had attended multiple ADW with the majority of first-time attendees coming from the university sector. Plant pathologists made up the largest group within the attendees.

Overall, participants provided positive feedback about the ADW2020. All attendees rated the workshop as either excellent, above average or average. Specific feedback from participants who have attended most ADWs indicated that the delivery of the ADW2020 was at an equally high standard as previous ADWs. NPBDN members still regard the NPBDN member talks, Diagnostic Residential Reports and invited speakers as the most valuable aspects of the ADW and they would like to continue running professional development workshops associated with the ADW. It was suggested that future ADWs include a poster session to allow more NPBDN members to share and discuss their work, especially students. Attendees also commented on the benefits of bringing the different groups together for the ADW and the value in the discussions that arise.

Attendees identified fungal identification and taxonomy as the most desired training workshop for the NPBDN professional development program. They also suggested the introduction of a NPBDN mentoring program. It appears that the NPBDN membership covers all the relevant sectors, but more should be done to engage the diagnosticians working in areas such as museums and universities. NPBDN members also expressed they want more interaction and joint workshops with the Plant Surveillance Network Australasia-Pacific (PSNAP).

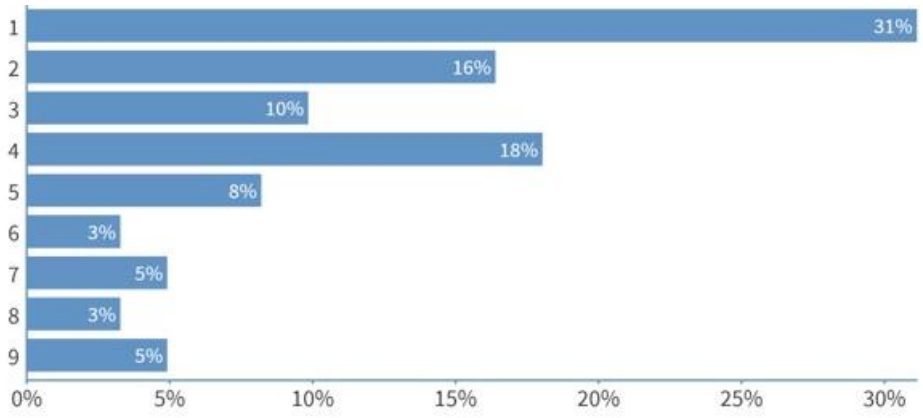
Evaluation questions

Q1: What is your primary diagnostic discipline?

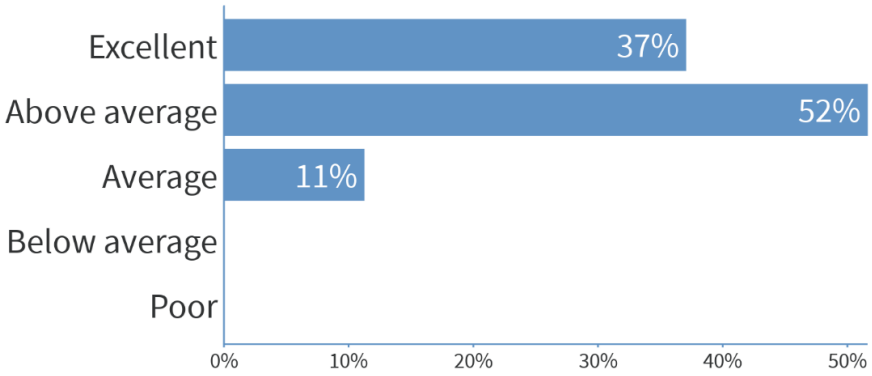


Q2: Where are you normally located?

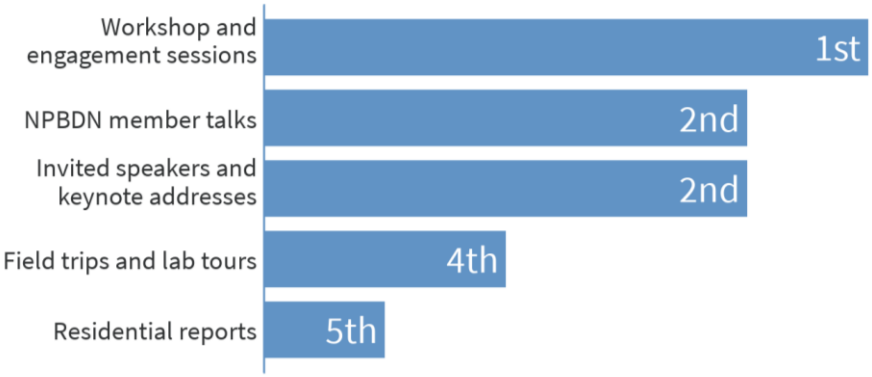
Q3: How many ADWs have you attended (including ADW2020)?



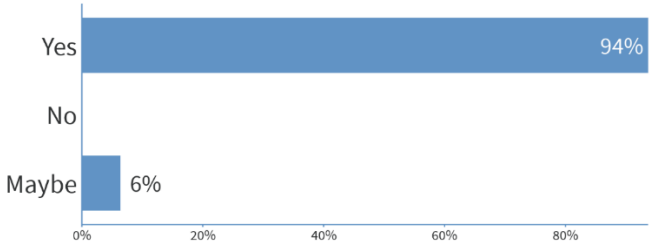
Q4: How would you rate ADW2020?



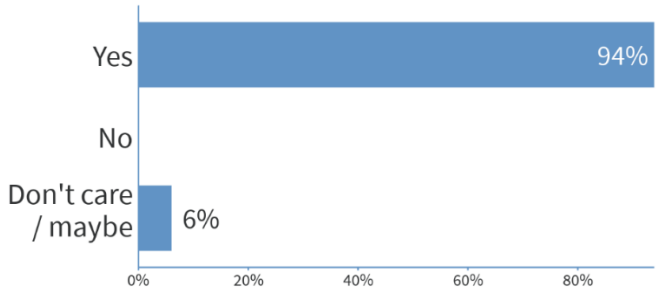
Q5: Rank the activities/presentation types that you find the most valuable (and want to see more of)



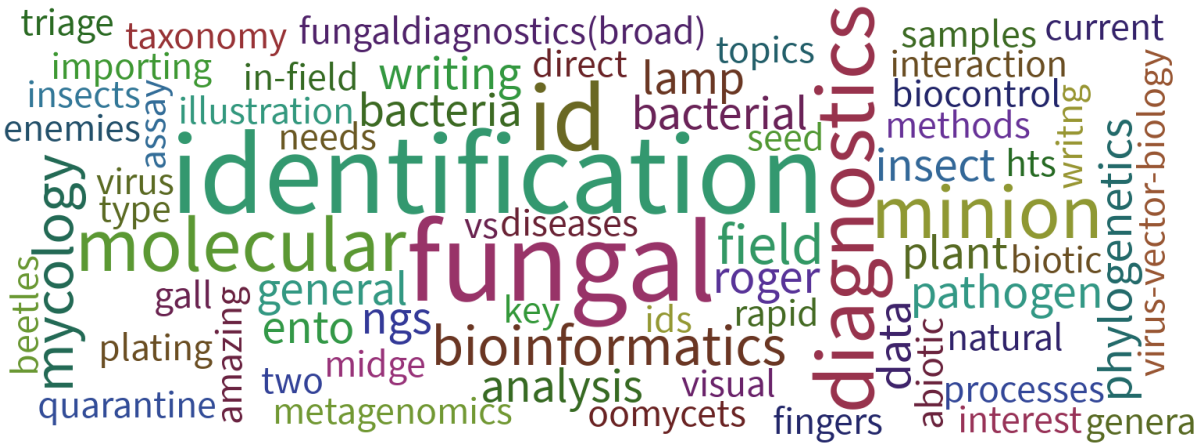
Q6: Should we continue with the NPBDN member talks (where we ask for abstracts)?



Q7: Do you want to continue running the professional development workshops associated with the ADW?



Q8: What professional development do you want to see associated with next year's ADW



Q9: Do you have any other comments about the ADW?

The following table provides a summary of the responses given by ADW attendees

COMMENTS	NUMBER
General positive responses, such as great, awesome, good job	**13**
Positive reflection on the diversity in attendee backgrounds and the value in the discussions	**4**
Positive comments on the venue	**4**
Mixed reviews on the catering	**4**
Positive feedback about the presentations	**3**
Positive feedback about the workshop dinner and venue	**3**
Thanked DAF Qld diagnosticians for the fall armyworm samples for reference collections	**1**
Asked for the agenda to be provided earlier next year to help decide on attendance	**1**
Asked for better time management for some speakers	**1**

Q10: Can you think of an organisation this is not currently part of the NPBDN, but should be?

Q11: What is something new that you would like to see in the NPBDN?

Q12: Can you identify one thing you would like the Diagnostics and Surveillance Networks Coordinator to do (AKA the NPBDN Coordinator)?

PARTICIPANT LIST

A total of 84 participants from 19 jurisdictions/organisations attended the ADW2020, as listed below.

FIRST NAME	LAST NAME	JURISDICTION / ORGANISATION	FIRST NAME	LAST NAME	JURISDICTION / ORGANISATION
Dante	Adorada	USQ	Kathy	Grice	DAF Qld
Ramez	Aldaoud	AgVic	Disna	Gunawardana	MPI NZ
Vera	Andjic	DAWE	Rebecca	Hamdorf	SARDI
Jordan	Bailey	NSW DPI	James	Hane	Curtin University
Justin	Bartlett	DAF Qld	Mike	Hodda	CSIRO
Kaylene	Bransgrove	DAF Qld	Gavin	Hunter	CSIRO
Paul	Campbell	DAF Qld	Monica	Kehoe	DPIRD
Toni	Chapman	NSW DPI	Manda	Khudhir	CSIRO
Yulie	Cheng	UQ	Levente	Kiss	USQ
Sally	Chesworth	PHA	Marzena	Krysinska-Kaczmarek	PIRSA-SARDI
Lilia	Costa Carvalhais	UQ	Edward	Liew	Sydney Royal Botanic Gardens
Susie	Collins	DAWE	Victoria	Ludowici	PHA
K'trie	Coster	GRDC	Tegan	Ludzioweit	DAWE
Karen	Cowan	NSW DPI	Andrew	Manners	DAF Qld
Kathy	Crew	DAF Qld	Anna	Marcora	CSIRO
Alison	Dann	DPIPWE TAS	Craig	Marston	DAWE
Dolf	De Boer	AgVic	Alistair	McTaggart	UQ
Kathleen	Deboer	PHA	Jennifer	Morrison	DAWE
Quang	Dinh	AgVic	Ian	Naumann	DAWE
Adrian	Dinsdale	DAWE	Tuan	Nguyen	DAF Qld
Kiryn	Dobbie	Scion	Elisse	Nogarotto	AgVic
Sarah	Dodd	DAF Qld	Natalie	O'Donnell	PHA
Andre	Drenth	UQ	Cecilia	O'Dwyer	UQ
Lauren	Drysdale	NSW DPI	Louisa	Parkinson	UQ
Jacky	Edwards	AgVic	Shreya	Patel	NT DPIR
Lixin	Eow	AgVic	Nandita	Pathania	DAF Qld
Fiona	Filardo	DAF Qld	Bradley	Pease	DAWE
Cherie	Gambley	DAF Qld	Sue	Pederick	SARDI
Peter	Gillespie	NSW DPI	Maxine	Piggott	NT DPIR
Dianne	Gleeson	University of Canberra	Darsh	Rathnayake	NT DPIR

FIRST NAME	LAST NAME	JURISDICTION / ORGANISATION	FIRST NAME	LAST NAME	JURISDICTION / ORGANISATION
Stephanie	Rensink	UQ	Yu Pei	Tan	DAF Qld
Vivian	Rincon-Florez	UQ	Jonathan	Terlich	PHA
Brendan	Rodoni	AgVic	Cathryn	Todd	SARDI
Jane	Royer	DAF Qld	Lucy	Tran-Nguyen	NT DPIR
Mark	Schutze	DAF Qld	Rod	Turner	PHA
Ainsley	Seago	NSW DPI	Isabel	Valenzuela	AgVic
Linda	Semeraro	AgVic	John	Wainer	AgVic
Roger	Shivas	DAF Qld	Thomas	Wallenius	DAWE
Linda	Smith	DAF Qld	Ossie	Wildman	NSW DPI
Angela	Spence	DAWE	Elizabeth	Wilson	Sugar Research Australia
Vish	Steele	DAF Qld	Bree	Wilson	USQ
Frezzel Praise	Tadle	NT DPIR	Sharon	Zuiddam	DPIRD