



**PLANT BIOSECURITY**  
science foundation

# 2020 'Plant Health' DAF Hermitage Research Facility Schools Plant Science Competition

*Research Impact Report/Final Report (PBSF021)*

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## 1. Executive Summary

The year 2020 started off like any other for the annual DAF Hermitage Research Facility Schools Plant Science Competition, with 100 schools registered and ready to get started on their 'Plant Health' themed projects. Student workshops were being planned and pre-bookings had been arranged for displays and presentations at the annual Awards Day to be held in August.

Then a few weeks later Covid-19 struck and suddenly, events were being cancelled, businesses were shut, schools were closed, and we all went into lockdown! The competition organising committee were left feeling bewildered and shocked at the unfolding crisis and we wondered how we would move forward with the competition in 2020.

After receiving wonderful support and feedback from registered schools who were keen to soldier on with the competition project throughout the pandemic, we decided to carry on with (not cancel) the competition and adapt to the changes and challenges ahead.

For the first time in the competition's 24-year history, we had no choice but to go digital to deliver our two major events, the state-wide student workshops and the annual Awards Day & Ag Science Expo.

Suddenly, we were thrust into "webinar world" where MS Teams and GoToWebinar would become our new communication platforms. Staff from the DAF 'Organisational Change and Communications' and 'Communications and Engagement' teams thankfully helped us navigate these new systems and develop digital content for the competition.

Instead of running student workshops across Queensland, we produced a [Plant Health webinar](#) (via MS Teams), which included (for the first time) a wider audience of interstate students as well as many Queensland students, sponsors and supporters who live too far away and don't usually make it to physical events. With 50 registered attendees (and potentially even more students watching via classroom broadcasts) this was a great result and an effective way to engage with students and supporters from far corners of the country.

Many students completed the competition tasks whilst learning from home and we saw a higher number of electronic entries submitted this year for that reason. We also needed to modify the entry submission criteria and allow for only 2 of the 3 mandatory tasks to be submitted for judging to make it fair for those students who were unable to complete all tasks due to Covid-19 disruptions.

In the months leading up to August, we prepared for our first ever "[virtual](#)" Awards Day. How to cram a day's worth of award giving and ag science fun into a 1-hour webinar was a huge challenge! With a lot of creative thinking and assistance from the DAF 'Communications and Engagement' team, we put together an engaging online event that 200 students, sponsors and supporters tuned in for.

Two of our major awards, the Conference Awards and the QuestaGame Overall Champion Award were awarded in 2020, but the winning students' attendance at an industry conference and the QuestaGame Global Awards Ceremony respectively have been postponed until a suitable time in 2021 (depending on the Covid-19 situation and any potential restrictions).

The remaining competition prizes were awarded, as usual, with winners announced during our virtual Awards Day ceremony. Prizes were posted to schools in September/October and included tertiary education scholarships, scientific journal subscriptions, Gifts cards valued at between \$30 to \$350, UQ FEAST camp scholarships, educational/science/technological/gardening products, art packs, trophies and medallions.

Even with the challenges faced in 2020, we received a great deal of positive feedback from students, teachers, sponsors/supporters and DAF staff involved in the 'Plant Health' competition and are confident that we are successfully encouraging young people to develop an interest in agriculture and science and to consider careers in this field.

## 2. Introduction

The Department of Agriculture and Fisheries (DAF), Hermitage Research Facility (HRF) Schools Plant Science Competition (SPSC) is an annual competition open to all primary and secondary school students from years P-12 throughout Australia.

The competition has been running since 1997 and has attracted over 115,000 students nation-wide during this time.

In 2020, we asked students to have fun with hands-on, engaging, scientific experiments and activities to learn more about plant health and discover just how important protecting plant health is in sustaining life on Earth.

The set experiments and activities included:

1. Plant Science Project Awards
  - a. Task 1: Scientific Investigation
  - b. Task 2: Plant Health mind map
  - c. Task 3: Global Food Security research
2. Art in AgRiculTure Awards
3. [QuestaGame 'Pest Invaders' BioQuest](#)

## 3. Aim

The main aims of the competition are to:

1. Stimulate an interest in science and agriculture in young people and to promote science and agriculture as a rewarding career.
2. Encourage children to think about local, state, national and global issues affecting the environment around them.
3. Provide students an opportunity to connect with DAF scientists and learn about "real-world" agricultural science research projects conducted by DAF.
4. Familiarise students with the concept and interpretation of scientific experiments.

5. Foster an awareness of DAF, industry (sponsors) and the community (schools) working together towards a sustainable future.

## 4. Methods/Process

The 2020 competition was organised/promoted in the following manner:

- Important dates:
  - Competition opens – 28 January 2020
  - Student Workshops – May/June 2020
  - Competition closes – 26 June 2020
  - Winners notified – mid/late July 2020
  - Awards Day & Ag Science Expo – 18 August 2020
- The competition organising committee (**Kerrie Rubie, Professor Andrew Borrell, Tracey Shatte, Katie McIvor** (all DAF Hermitage staff) and **Simon Hamlet** (Teacher, DET) select an agricultural science related topic ('Plant Health' 2020), develop the various experiments and activities and write the full competition instructions and guidelines for distribution (via email) to registered schools.
- A communications plan is developed (in conjunction with the DAF 'Communication and Engagement' team) and outlines the timely delivery of traditional media releases, social media posts and development of promotional materials.
- Emails (and follow up registration reminders) distributed to over 1,400 teachers on the competition database with information on the competition.
- DAF and sponsors/supporters share competition information and updates through social media channels and via email/newsletters (through their networks/contacts).
- DAF distribute state-wide media releases to coincide with the start of the competition (in January/February) and the annual Awards Day & Ag Science Expo (in August) each year.
- Project Leader (Kerrie Rubie) manages a [Schools Plant Science Competition Facebook group](#) with current member numbers at 113.
- Competition information is posted on the DAF competition website at ([www.daf.qld.gov.au/hermitage-competition](http://www.daf.qld.gov.au/hermitage-competition)) and details are sent to competition sponsors/supporters to share on their websites as well (eg, Primary Industries Education Foundation Australia (PIEFA), National Science Week, Science Teachers Association of Queensland (STAQ)).
- The DAF communication and engagement team assist with the design of promotional materials required for the competition, as required, including artwork/production of banners, flyers, posters, certificates, email banners, supply of images, promotional seed stick/business card packs and badges.
- Upon request, various schools are visited by DAF staff to help promote agricultural science and the competition to students (or online webinars are organised).

- Student state-wide Workshops, facilitated by DAF staff or external companies, are organised at various locations throughout Queensland in May/June (or provided via webinars).
- An invitation to the Awards Day & Ag Science Expo is distributed to all registered schools, all local Warwick schools, local PROBUS group, DAF staff, competition sponsors/supporters and related industries who are invited to participate in the event with trade displays.
- Awards Day & Ag Science Expo flyer is designed, printed and placed on display in Warwick's Rose City Shopping World and IGA Supermarket noticeboard to encourage community members to attend.
- DAF Ministerial Briefs are prepared for approval to seek new sponsorships and to invite the Minister/DG to the annual Awards Day & Ag Science Expo.
- The competition coordinator attends regional and national science education conferences to promote the competition to hundreds of education/industry/government delegates via presentations and trade displays.
- Competition details are listed on STAQ's website as a feeder competition for the STAQ/BHP Billiton Science Awards.

## 5. Achievements, Impacts and Outcomes

- **100 schools registered** from QLD, NSW, VIC, TAS, SA, WA & NT.  
*Note: numbers are a little lower than usual, but the decrease in registrations is likely due to the impact of Covid-19 and schools being in lock down when a second wave of registrations usually come in at the beginning of Term 2 (after April school holidays)*
- An estimated **1,864 students reached** across Australia.
- In late 2019, competition major award winner, **Michelle Springolo** (year 10 student from Toowoomba) was selected as one of the 26 finalists from across Australia in the national **BHP Billiton Science & Engineering Awards** for her 2019 'Pest Invaders' research project. In early 2020 Michelle attended a practice presentation session in front of staff at the Hermitage Research Facility before attending a 3-day science camp (and the finals) in Melbourne, but unfortunately, she was not selected as the winner in her category.
- The 2020 competition was **successfully run in an online format** due to Covid-19 and we presented our Plant Health student workshop and annual Awards Day ceremony via webinar platforms for the first time in 24 years, with great attendance numbers (50+ registrations for the workshop and 200+ for the Awards ceremony).
- Due to running the above mentioned online events, the overall costs to run the 2020 competition were dramatically reduced, therefore, it is unlikely that we will require the full \$15,000 funding from Plant Biosecurity Science Foundation.
- The **QuestaGame 'Pest Invaders' BioQuest**, for competition participants (and other schools interested in joining the quest) involved registered players engaging in a mobile gaming app

to photograph and identify potentially invasive insects, plants (weeds) and animals found in the environment, with their findings also being recorded in CSIRO's Atlas of Living Australia. Pest Invaders BioQuest players made **3,860 sightings** with **3,413 identifications** recorded and **887 different species mapped!**

- A total of **71 science and art entries were received** in the competition.
- Two '**Conference Award**' winners and the '**QuestaGame Overall Champion**' winner will attend a suitable Conference and the QuestaGame Global Awards Ceremony (respectively) in 2021, depending on the situation with Covid-19.
- Four students were recipients of the **UQ FEAST Scholarships** and will attend the 5-day FEAST Camp at UQ Gatton, in July 2021.
- A new **Facebook Group** was trialled for the competition in 2019, as part of a DAF 'Digital Extension Toolbox Pilot Project'. The closed group was created by the competition coordinator on 14 June 2019 and attracted 48 members consisting of schools, teachers, DAF staff, sponsors and supporters. **Member numbers are currently at 113** and it is hoped this group will continue to grow and become a great space for sharing information, photos, videos, questions, updates, event details, career pathways and just about anything else related to the competition and agricultural science in general.

The main aim of our competition is to stimulate an interest in agriculture and science in young people and to promote agriculture and science as a rewarding and exciting career choice.

This is achieved, not only by students partaking in the competition's hands-on experiments and activities, but also through extended activities and support offered including student workshops, school visits by DAF scientists and staff, the annual Awards Day & Ag Science Expo and a large range of prizes including scholarships to attend agricultural science conferences and camps. Below are two examples of feedback provided this year from participating teachers:

*"I also have to say, in this time of crisis (Covid-19) ...our community needs reasons to keep working. Our kids need inspiration to keep working. We need purpose. What better way for the scientific/Ag community (DAF and sponsors) to say, "We support you because what we do and what we want to inspire you to do is worthwhile and worth pushing through any crisis" than by continuing the comp?"*

and

"Hello Kerrie,

We are very lucky that our new Science teacher at Good Shepherd College is keen to be involved in this competition, so we now have Science and Ag classes to work on this = a lot more time. We would therefore like to enter Good Shepherd College into the Plant Science Project Awards section of the competition.

We currently have a class of 15 Year 8 students started on Task 1, the 'Plant Health' themed scientific investigation. The objective is to determine the temperature thresholds for emergence for six legume pulse crops grown in south-west Victoria. We



are doing it under the guidance of one of our local Department of Agriculture (DEDJTR) scientists, Penny Riffkin. The data collected will contribute to a bigger project that the Victorian Department of Agriculture are doing in partnership with GRDC and Victorian Grains Innovation. Sowing times are February-May. Very exciting!

The same class will also do task 2 and 3. Please keep us in touch with any competition developments.”

Students participating in the competition gain further skills and knowledge in STEM including scientific method and understanding, investigating agricultural science issues (national and global), scientific report writing, mathematics, teamwork, communication, technology and art and our competition units are often incorporated into the Australian Curriculum.

## 6. Discussion and Conclusion

The competition, now in its 24th year, continues to be very successful. We continually attract a high number of schools and many have become regular participants, registering each year eager to take on a new and interesting plant science project challenge.

Many teachers now incorporate the competition project as their unit of study within the Australian Curriculum. The competition also complements the [Primary Connections](#) program which links science with literacy and is an innovative approach to teaching and learning which aims to enhance primary school teachers’ confidence and competence for teaching science.

We frequently receive positive feedback from the education sector, students, general community, sponsors and DAF staff which is great encouragement for the organising committee.

We believe the DAF Hermitage Research Facility Schools Plant Science Competition will continue to grow in popularity and stature and with support from sponsors, DAF and the education department we will continue to offer the competition to schools throughout Australia.

## 7. Recommendations

N/A

## 9. Appendices, References, Publications

Please attached (via email):

1. 2020 ‘Plant Health’ Competition Instructions and Guidelines
2. 2020 Media Attention
3. 2020 Invitation to Student Workshops
4. 2020 Invitation to Awards Day & Ag Science Expo
5. 2020 Competition Registration list

**Note: A full and comprehensive Final Report on the 2020 competition will be forwarded to DAF staff and sponsors/supporters in 2021.**



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