

Biosecurity awareness and emergency animal disease preparedness in NSW high schools

Final report

25 September 2024



FASTER
HORSES 

Published by the Department of Primary Industries and Regional Development

Title: Biosecurity awareness and emergency animal disease preparedness in NSW high schools

Subtitle: Final report

First published: 2024

ISBN: 978-1-76058-833-5

[More information](#)

Cite this report as: Schembri N, Brockelsby A-L, Wilkinson L, Carr-Boyd A, and Doyle E. 2024. *Biosecurity awareness and emergency animal disease preparedness in NSW high schools*. NSW DPIRD Final Report.

NSW DPIRD Project team:

- Nicole Schembri (Project Manager and Author), Animal Biosecurity – Newington
- Emily Doyle (Project Supervisor), Animal Biosecurity - Bega

Faster Horses project team and authors:

- Ann-Louise Brockelsby, Director, Faster Horses Consulting - Sydney
- Liz Wilkinson, Director, Faster Horses Consulting - Sydney
- Abby Carr-Boyd, Account Manager, Faster Horses - Sydney

Acknowledgements

This project was funded by the NSW Treasury. The social research including the interviews, codesign workshop and resource testing focus groups were conducted by Faster Horses Consulting Pty Ltd.

The NSW DPIRD project team would like to acknowledge and thank the contributions of the NSW DPIRD Schools Program's Michelle Fifield and Meg Dunford; and members of the NSW Department of Education, Sally Bannerman, Sam Jarrett, Kalen Sowter and Rosemary Hegner who formed the project Steering Committee, providing guidance throughout.

The NSW DPIRD project team would also like to thank and acknowledge Lynne Crawford for her time and expertise in supporting the development of the Biosecurity in Schools e-learning module.



Cover image: The school farm image was created by Jessamy Gee of Think in Colour



© State of New South Wales through DPIRD 2024. You may copy, distribute, display, download and otherwise freely deal with this publication for any purpose, provided that you attribute the Department of Primary Industries and Regional Development as the owner. However, you must obtain permission if you wish to charge others for access to the publication (other than at cost); include the publication in advertising or a product for sale; modify the publication; or republish the publication on a website. You may freely link to the publication on a departmental website.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (September 2024) and may not be accurate, current or complete. The State of New South Wales (including the DPIRD), the author and the publisher take no responsibility, and will accept no liability, for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own inquiries and rely on their own advice when making decisions related to material contained in this publication.

Table of Contents

INTRODUCTION	5
Research context	5
Research Objectives	5
METHODOLOGY	6
Rapid evidence review	6
In-Depth Interviews	7
Co-Design Workshop	8
Communications Testing	9
In-school field trial	10
RESULTS	11
Deep dive findings	Error! Bookmark not defined.
Review and Audit	11
Key findings: In-depth interviews	13
Context Setting	13
Experience of biosecurity issues	19
Knowledge of disease threats	19
Attitudes towards Biosecurity	21
Knowledge and awareness of risks	23
Prevention and Management	26
Sources of Knowledge and Support	33
Communication Pathways: Current and Potential	36
Co-design workshop outcomes	38
PREVENTION: Remind the school community of good biosecurity behaviours	39
AWARENESS: Socialise EAD symptoms identification through animal observation	41
RESPONSE: Clarify the process for reporting EAD outbreaks	42
Communications testing	43
Summary of Collateral	43
Reporting checklist	43
Visiting School Farm Poster	46
Signage: Internal School Farm Fence	49
Signage: External Fence Feeding	50
Signage: External Entry Point	50
Glovebox Guide	51
In-school field testing	52
School participation	52
Reporting checklist and flow chart	54
Signage	57
Visiting school farm sign	57

Internal school farm fence	58
External fence feeding sign	60
Glovebox Guide	61
Additional school farm biosecurity resources	62
Biosecurity risk pathways poster	62
Biosecurity in schools e-learning module	63
Resource accessibility	63
<i>APPENDICES</i>	<i>64</i>
Deep Dive Findings	64
Summary of Assessment	64
NSW DPI In Schools Program	73
NSW Education: Animals in Schools Biosecurity	77
Primezone	79
Royal Agricultural Society of NSW: Education Resources	81
In-Depth Interviews	83
Ag teacher discussion guide	83
Stakeholder discussion guide	87
Co-Design Workshop Deck with outputs	91
Communications Testing	92
Check list: Reporting Suspicion of EAD – Example A	92
Check list: Reporting Suspicion of EAD – Example B	95
Visiting School Farm Signs	99
Internal school farm fence sign	99
External fence feeding sign	100
External entry point sign	100
Glovebox Guide	101
Online evaluation survey	101

INTRODUCTION

Research context

With numerous of emergency animal diseases (EADs) being detected in the broader geographical region, there is an ongoing and increasing risk of these EADs being identified in livestock in Australia and NSW. In addition, there have been a number of cases of endemic and notifiable animal disease reported in NSW schools, that upon investigation, could have been prevented or minimised by greater biosecurity awareness and protocols implemented at school level.

Schools act as a key congregation point with a significant number of people comingling from a broad geographical area, a variety of backgrounds and circumstances with and without pre-existing linkages to animals. This environment could act as a disease transmission pathway for EADs (such as foot-and-mouth disease) and zoonotic diseases (that are spread between animals and people) into the broader community.

With little understanding of the current state of play in schools with regards to biosecurity planning, management and implementation, the NSW Department of Primary Industries (DPI) commissioned research to assess the knowledge, attitudes and capacity of high schools to comply with biosecurity measures and develop resources for an engagement campaign to support those endeavours.

Research Objectives

The overall objectives for the project were to:

- Investigate, assess and report back on animal biosecurity knowledge, attitudes, practices and disease surveillance activities through qualitative social research and educational outreach.
- Using co-design principles, develop and test education, awareness and guidance resources through a human centred, co design process that meets high school needs and, where appropriate, curriculum objectives.

Specific objectives for the qualitative social research with stakeholders, Agriculture (ag) teachers and staff, was to understand:

- Knowledge and awareness of animal health, biosecurity reporting, communication pathways/ information sources, level of interest and engagement
- Attitudes towards animal health generally, biosecurity, EADs, reporting, priority/level of importance
- Practices and EAD readiness: already in place, barriers and opportunities to adopting new prevention practices, capacity for change.

METHODOLOGY

A phased approach was taken to investigate biosecurity awareness and EAD preparedness in NSW high schools and develop targeted behaviour change interventions to support biosecurity best practice and disease surveillance in a school environment. The methodological approach, as outline in Figure 1, included:

1. A rapid evidence review on current school-specific guidance documents
2. Depth interviews with education stakeholders, agriculture teachers and support staff
3. Co-design workshop
4. Communications testing
5. In-school field testing

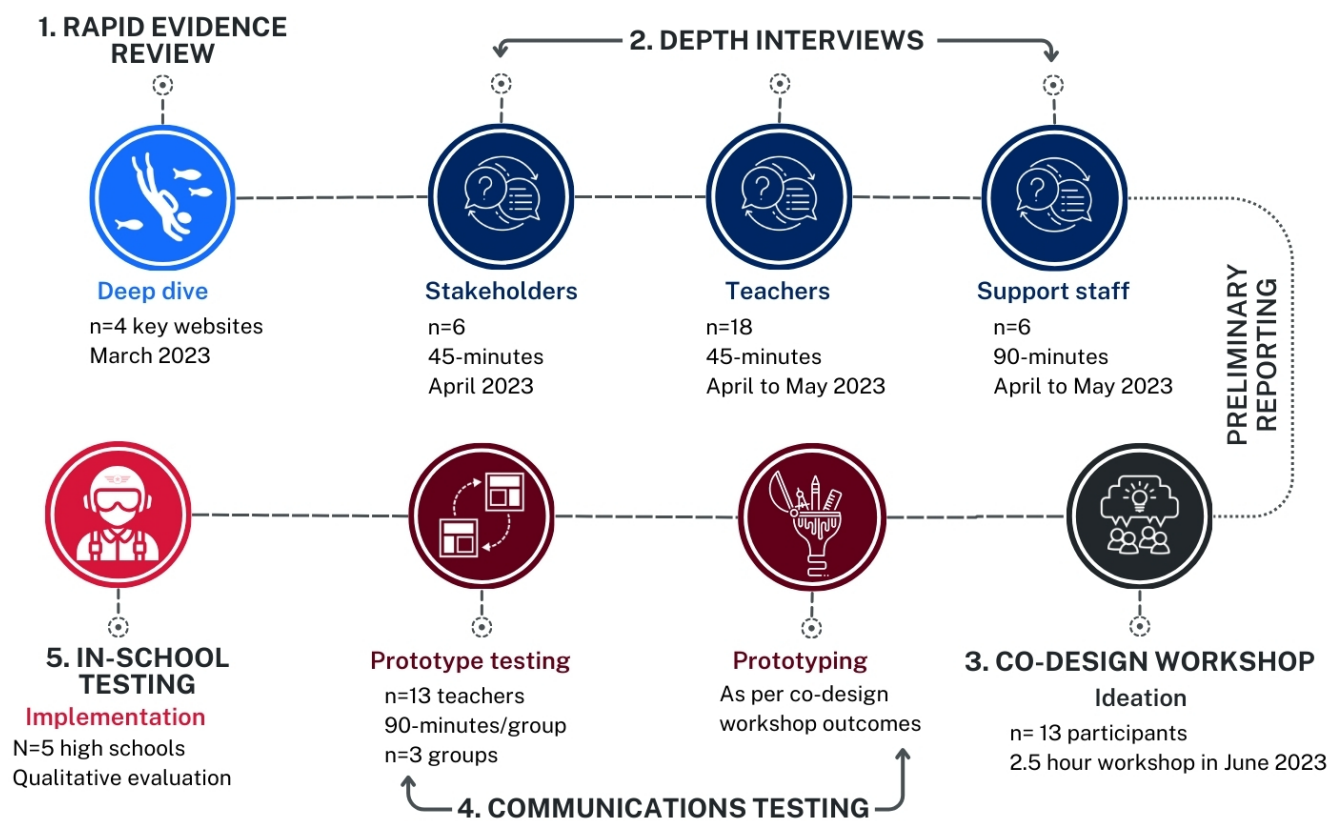


Figure 1. Summary of methodological approach

Rapid evidence review

The Deep Dive on current biosecurity guidance documents available to teachers to support biosecurity implementation in the school environment was scheduled to take 2 working days and the relevant works agreed to be included were:

1. <https://www.nswdpi-schools-program.com/secondary-school-menu>
2. <https://education.nsw.gov.au/teaching-and-learning/animals-in-schools>

3. <https://www.primezone.edu.au/>
4. <https://www.rasnsr.com.au/education/>

The five key framing questions for the Deep Dive were:

1. What guidance documents are available to teachers to support animal biosecurity understanding and implementation in the school environment?
2. How consistent are the guidance documents across the relevant sites?
3. How accessible are the guidance documents?
4. What are the key biosecurity behaviours (activities) NSW high schools are being asked to implement? (will help to inform interview guide about biosecurity implementation, attitudes, drivers, barriers, which behaviours are worth focussing on for the co-deign etc)
5. Do teachers have the ability to seek further specific advice from experts if required?

The Deep Dive Report was delivered in a word document on the 12th April 2023.

In-Depth Interviews

A total of n= 30 one-hour in-depth interviews were conducted to gauge biosecurity awareness and EAD preparedness in high schools from the perspective of ag teachers, other staff involved in animal welfare at schools and interested stakeholders from NSW Department of Education and affiliated agricultural associations (Table 1).

Table 1. Distribution of in-depth interviews and participant numbers.

Audience	Interviews (n=)
Stakeholders: Senior stakeholders representing NSW Department of Education (DoE) and affiliated agricultural associations.	6
Agriculture teachers: By school type: Government / State High School n=14 Independent / Catholic / Other denominational High School n=6 By location: Metro n=7 Regional / rural n=13	20
Other staff or school employees interacting with animals in the school farm	4

**all Other staff from Government / State High School were located in Regional / rural NSW*

The sample was primarily sourced through NSW DPI contacts. Teachers and other staff were initially sourced via email and a social media post by NSW DPI, explaining the research and encouraging

them to register interest. The stakeholders were also sourced from NSW DPI contacts, who were senior representatives from NSW DoE and affiliated agricultural associations.

For Independent and Catholic schools outside the NSW DoE's jurisdiction, initial contact was through the respective school's reception to gain the email address of the Head of Agriculture, the ag teacher, or other ag staff.

Faster Horses contacted those who have expressed interest to arrange a suitable date and time for an interview. It should be noted that the stakeholders and teachers included in this stage of the research were highly engaged in the topic. The participation of other staff came through referrals from ag teachers and other stakeholders as interviews were being booked.

Ag teachers and other staff received an online gift voucher of \$100 to thank them for their time. All other respondents were not incentivised due to their invested interest and engagement with the topic.

Interviews were conducted between 11th April and 9th May 2023 by the Faster Horses research team. They were conducted via MS Teams, Zoom or telephone based on what best suited the respondent.

Co-Design Workshop

A total of n=16 attended the online two-and-a-half-hour Co-Design Workshop to review the in-depth interview findings identify tactical, practical, simple, low-cost behaviour change intervention to support surveillance and early detection practices in schools. The workshop comprised of:

- n=3 Faster Horses team members
- n=9 project stakeholders from NSW DPI and NSW DoE
- n=4 agriculture teachers.

The workshop attendees were split into three teams to identify behaviour change intervention solutions to improve school farm biosecurity awareness and preparedness across three topics.

Prevention: Behaviour Reminders

+ Remind the school community (internal and external) of good biosecurity behaviours.

Awareness: Animal Observation

+ Socialise EAD symptoms identified through animal observation.

Response: Reporting Outbreaks

+ Clarify the process for reporting EAD outbreaks.

Each team took one topic and considered the following questions when identifying interventions:

- Who is our audience?
- What is the key message that needs to be communicated?

- How should the message be communicated?
- What imagery should be used in the communications?
- Who should the message be from? Which partners could be involved?
- What is the most effective way to communicate? What current communication pathways are available to utilise?

The Co-Design workshop was facilitated by the Faster Horses team and took place on 31st May 2023 via Zoom. The agriculture teachers were given an incentive of \$200 for their participation in the session.

Communications Testing

Ag teachers who had taken part in the prior stages of the research participated across three focus groups (n=14 with n=4-5 participants in each group) to review and provide feedback on the behaviour change intervention solutions developed following the Co-Design Workshop.

With the emphasis on tactical, practical, simple, low-cost behaviour interventions, key awareness and guidance resources were identified and prioritised for the communications testing against the topic areas of response; prevention; and awareness (table 2).

Table 2. Guidance resources developed by topic area for communications testing by participating ag teachers.

Response	Checklist for reporting a suspected EAD in the school: 2 executions: Example A and Example B.
Prevention	• Visiting School Farm Poster (2 executions) Signage: • Internal School Farm Fence (2 executions) • External Fence Feeding Sign (2 executions) • External Entry Point Signage (1 execution): ○ NSW Government official biosecurity signage for external entry points into biosecurity areas.
Awareness	Glovebox Guide: Biosecurity, Emergency Animal Diseases and preparing livestock for transport.

Copies of the proposed posters and signage, the checklist for reporting a suspected EAD in the school and the Glovebox Guide were emailed to the participants ahead of the scheduled groups.

Following the feedback from Group 1, the checklists and posters were modified for the remaining groups. For Group 3, the order of the concept sets for the posters and signage were rotated (see Appendix for testing materials.)

The Communications Testing groups took place in the week commencing 26th June 2023, facilitated by the Faster Horses team via Zoom. Ag teachers received an incentive of \$120 for their participation.

In-school field trial

A total of n=5 teachers who were involved in the prior stages of the research participated in a field trial of the behaviour change solutions developed following the Stage 4 Communications test groups.

Signs were printed in ISO A3 on corflute, while the poster was printed on ISO A3 art paper. Hard copies of the disease reporting checklist and flow chart were provided in ISO A4. Participating teachers were asked to nominate the quantity of each of the signs and posters they would trial, based on their school and farm set-up (table 3).

Table 3. Guidance resources by topic area for in-school field testing by participating ag teachers.

Response	Checklist for reporting a suspected EAD in the school Decision-making flow chart
Prevention	Signage: • Visiting school farm biosecurity sign • Internal school farm hygiene sign • External fence feeding sign • External Entry Point Signage (from Local Land Services) ◦ NSW Government official biosecurity signage for external entry points into biosecurity areas. Poster • Disease pathways (risk pathways identification)
Awareness	Glovebox Guide: Biosecurity, Emergency Animal Diseases and preparing livestock for transport.

Digital copies of all the resources were emailed and hard copies of all requested resources were posted to the participating teachers and schools. All schools received a box of the glovebox guides (n=74 guides).

The In-school field testing took place in Term 4, 2023 and Term 1, 2024 commencing October 2023.

An anonymous online evaluation survey consisting of a combination of 22 open and closed questions was deployed using Microsoft® Forms following the in-school field trial. The survey sought to understand the perceived value of the resources in increasing biosecurity awareness, understanding and associated behaviour change at the school and school community level. The online evaluation survey was carried out with Human Research Ethics Approval from NSW DPIRD: (Approval number HRE-NLR-2024-04).

RESULTS

Rapid evidence review

Review and Audit

The response to the five key framing questions for the review and audit can be summarised as follows:

What guidance documents are available to teachers to support animal biosecurity understanding and implementation in the school environment?

Three websites have documents available to teachers to support animal biosecurity understanding and implementation in the school environment:

- NSW DoE Animals in Schools Biosecurity Template A, B and Letter to parents
- Primezone (by PIEFA) African swine fever (ASF) prevention and early detection eLearning course
- NSW DPI in Schools website did not necessarily have dedicated and separate resources for animal biosecurity and its implementation in schools, but had 2 documents containing sections that discussed animal biosecurity:
 - Pork production worksheet – ‘Pigs and biosecurity’ section and biosecurity in general mentioned in various sections in the document.
 - HSC elective Agri-food, fibre & fuel tech study guide contains a section ‘Examine the role of biosecurity.’

The rest of the NSW DPI in Schools website had some links to other documents that point to biosecurity for invasive pests.

The Royal Agriculture Society (RAS) website did not provide any guidance documents.

Independent to the nature of the resources on the site (learning frameworks, resources for teaching) animal biosecurity is not represented as a whole except in the NSW DoE Animals in Schools website, compared to crop and pest biosecurity or individual animal type resources.

To bring EAD front of mind in every resource interaction, direct access to a specific EAD section with a corresponding set of resources should be available via the home page.

How consistent are the guidance documents across the relevant sites?

The NSW DoE Animals in Schools templates were fully comprehensive documents, compared to NSW DPI’s two documents. The NSW DoE’s templates described all the steps deemed essential to establish good biosecurity practices in schools, while NSW DPI’s documents are more informative in nature and describes how biosecurity practices are implemented.

PIEFA’s free eLearning course for ASF prevention and early detection focussed on promoting the course, in which the detail would be provided for teachers who undertake it. NSW DoE templates and NSW DPI’s (HSC) document also talked about biosecurity in broad animal terms, while NSW DPI and PIEFA’s documents limited biosecurity to pigs.

Naming convention for any templates should be closer to the contents or title of the document (e.g. Template A/Non-Agriculture School Biosecurity Template.)

How accessible are the guidance documents?

NSW DoE Animals in Schools and Primezone had search functions that pointed directly to the websites/documents. For those familiar with the structure of the site, the documents fell under (mostly) relevant headings.

NSW DPI in Schools website did not have search functions; in order to locate any topics on biosecurity, opening links to documents or student guides that could potentially mention animal biosecurity, and doing a Find function (Ctrl+F) on the .pdf files to find any mention of biosecurity was necessary.

The RAS website did not have guidance documents at all, nor sections of their website dedicated to animal biosecurity.

Overall, the websites have some logical paths to the resources (not necessarily intuitive), but the landing pages will not necessarily have animal biosecurity on the front, indicating that the importance is secondary to the main message of promoting agriculture in schools in general.

What are the key biosecurity behaviours (activities) NSW high schools are being asked to implement?

The NSW Animals in Schools Biosecurity page gives an overview of what Biosecurity is and steps to put this in place. By detailing the steps, the site indicates the following biosecurity behaviours:

- Having a plan and sharing it with staff
- Knowing vet and their contact details
- Ensuring sheep, cattle, and goats are tagged with National Livestock Identification System (NLIS) devices and transfers up to date on the NLIS database
- Never feed food scraps to pigs or ruminant animals and control the community's ability to feed your animals
- Vigilance and knowing the signs of disease
- Making important information readily available for the Principal, Head Teacher, Farm Assistant and any other relevant staff.

While the documents provide a template for a comprehensive plan, administering the form could be a barrier to implementation. It would be crucial to take the team members through it collaboratively to foster a sense of buy-in, cooperation and long-term compliance.

NSW DPI in Schools' HSC document detailed the below as key drivers of good biosecurity, and could be counted as themed (and easy to recall) behaviours:

- Protection
- Prevention
- Prediction
- Preparation
- Response

- Recovery

NSW DPI in Schools' Pork production document have the below examples of ways pig owners implement high levels of biosecurity:

- No swill feeding
- Prevent contact with neighbouring properties
- Separation from other animals
- Introduction of new stock and quarantining
- Controlled access
- Disease identification and reporting
- Pig identification and movement documentation
- National vendor declaration.

The PIEFA eLearning ASF course points to biosecurity behaviours being informed, and included the prevention, recognition and reporting of signs of ASF disease.

Aligning the structure of how Biosecurity behaviours are discussed and how the factors are grouped accordingly would provide a written-linguistic semiotic to help embed knowledge e.g., always use the word prevention when discussing correct feeding of animals or always use the word protection alongside animal identification and movement documentation

Do teachers have the ability to seek further specific advice from experts if required?

The websites each have their generic Contact Us link for teachers to seek further specific advice.

Finding the experts will take a while, as the contact types seem to lead to generic landlines/inboxes that will need to be sorted, transferred, and redirected to the correct department or contact.

Only NSW DoE Animals in Schools has a direct contact with a name, role/position, landline and email address (Animal Welfare Officer).

Consistent and available contact points (email and phone) across sites, with one or two specific names, for contingency purposes, or even generic phone and emails, would increase support for ag teachers and others across touchpoints. It would also help channel enquires to ensure consistency of response to queries.

A summary table of the review and audit outcomes alongside the full analysis is available in the Appendix.

In-depth interviews

Context Setting

Background and experience

The focus for the social research were interviews with agriculture teachers and other agricultural staff; farm assistants and a farm manager, supported by interviews with senior stakeholders

representing NSW DoE and affiliated agricultural associations. All were an engaged and passionate cohort, forthcoming with their experiences and views on the topic.

Teacher experience ranged from those relatively new to schools and teaching, to those with years of experience. Some had trained specifically in teaching agriculture, some had arrived via other subjects.

“I came into it through our school only three years ago and the teacher needed a hand. So I put my hands up and have been thrown into it ever since.”

-Female, Independent school

“I’ve been a teacher for nearly 30 years and I’ve been an agriculture teacher all that time, and I was involved in one school.”

-Female, State school

“Studied Agriculture in a Sydney high school from Year 7 to Year 12, continued with agricultural science with Honours in Sydney University, then did a graduate diploma of education and got into teaching.”

-Male, Independent school

“I studied at Macquarie University. I did a Bachelor of Science Diploma in Education with a major in Earth Sciences and Biology, then taught for quite a few years in NSW and QLD. Our head teacher said she didn’t have an ag teacher, would I like to teach ag or marine science, I picked ag. So, I was sent to do tractor training with the DPI and sheep training as well.”

-Female, State school

Independent of whether they were specifically trained in agriculture or not, many had a personal connection to the subject, either being brought up in agriculture and/or having current farming interests.

“I’m 5th generation Australian farmer, so I grew up on a farm in the central West of NSW. I did a trade as well as classes: so I worked in shearing sheds and then for Australian wool testing authorities.”

-Female, Catholic school

“I left school in 2000, I wanted to be a design technology teacher. I then realised you could teach agriculture, which wasn’t offered in the school I taught in. However, we had some cattle, couple of horses and chickens at home. Then I realised that that was going to be a much more interesting career path to teach something that I really was interested in. I then did a Bachelor of Systems Agriculture.”

-Male, Independent School

"This is my fourth year of teaching and my second year of teaching agriculture. But I do have it's my subject area and we have a beef cattle farming background or farming business myself. So I have a fairly good knowledge in the ag area, but not a lot of teaching experience in general."

-Female, Religious school

It was roundly acknowledged by the stakeholders there is currently a shortage of ag teachers in the state education system, which has led to other subject teachers teaching agriculture. Without the intention, passion and knowledge for agriculture, this has a direct impact on biosecurity generally and EAD prevention and awareness.

"There's a big shortage of Ag teachers, you have design and tech or PE teachers teaching Ag...the info and education is there, they don't know where to look. A PE teacher might not know about DPI."

-Stakeholder

"The ag teacher's lack of knowledge is not intentional, if they know better, they do better."

-Stakeholder

Whilst there was a general level of knowledge and awareness of biosecurity risks, the years of experience in teaching and the personal connection to agriculture, which translate into a deeper knowledge and passion, appeared to be the defining factors in the level of understanding of biosecurity risks and confidence in measures, rather than being dependent on whether they were specifically trained in teaching agricultural.

"My years of experience actually helped me, whereas if you're only in the first two or three years of teaching, you don't have that. And that's where you need somebody to help guide you to why do I have to have a biosecurity plan?"

-Female, State school

"That collegiality of staff, that sort of social currency of building up a relationship with people has helped make that possible. Though what I've learned over time is to set up best practices means you rarely have those situations present themselves and that's how I tend to deal with it: trying to get everything working well. And easy to manage instead of having to sort of put out bushfires, they're kind of more just little spot fires, if that makes sense. Things happen, but you've got things in place to manage them as effectively as you can."

-Male, Independent school

Role and Responsibilities

The agricultural teachers and other staff interviewed represented a broad range of high schools with agricultural programs, with the numbers of students enrolled in the elective and the location of the school, reflected in the species and numbers of animals held.

"Tend to start off by running with what's there, but also the size of our school. In terms of land, there's not really enough room, also being coastal. I found sheep may just work better. And also in

terms of kids: we're only a Year 7-10 school, sheep feels more comfortable thing to be teaching rather than cattle."

-Female, State school

"Being a slightly smaller school, our ag is like a really popular subject here. I got a Year 9 class of 26; Year 10, there's 34 across two classes; Year 11 is a class of about 14, and Year 12 is a class of 12. Sort of good numbers in comparison to other subjects in the school and sort of the cohort in general."

- Male, Independent school

"At the moment, there was no Stage 5 kids that wanted to do ag this year. So Ag's not running at all. I teach Mandatory Technology in Stage 4, and there are a lot of Primary Industries students, I've got 10 of them."

-Female, State school

"We have six sheep, two alpacas, 3 beehives, aquaponics with silver perch, 40-50 laying hens. We currently have crickets because we're doing an enterprise on alternative protein sources looking at agriculture of the future. But yes, the animal biosecurity is where my main concerns are too."

-Female, State school

The schools represented, also had a mix of how and where the animals were kept and housed, which can be implicit to an agriculture teacher's assessment of risk and implementation of biosecurity measures given variables such as number of access points, ability/room for quarantine, proximity to school boundaries and high foot traffic areas. (*See Knowledge and Awareness of risks section.*)

Depending on the extent of ag teaching requirements, some of the agriculture teachers were also engaged in teaching other subjects.

"My load then is also as head of TAS is managing design technology, software, food tech teachers as well. So that does take a bit of my time out away from agriculture. That's just the nature of the beast."

-Male, Independent school

All the agricultural teachers were supported, as a minimum, by the prerequisite part time farm assistant. It was also noted that in comparison to other subject support staff, i.e. lab technicians, the farm assistant did not need to have specific qualification to be employed or provide as much classroom support, given the role is only part time and, in some instances, shared with another school.

"We've got a full-time agriculture assistant who looks after all the practical side of things like the ag plots, maintaining and upkeeping, purchasing. All that practical stuff like a science lab assistant kind of thing. She looks after all the practical side of things for us (Agriculture Department)."

-Male, Independent school

In almost all circumstances, aside from agriculture teachers in purely agriculture schools, the farm assistant represented the only subject matter colleague for the ag teacher, compared to other disciplines, such as science, maths or English. This was reflected on by many of the agriculture teachers, resulting in a sense of lack of immediate support and isolation, a sentiment echoed by stakeholders and as biosecurity preparedness was explored.

“We just let our Head of (STEM) Department know. They’re all new to it and don’t really understand ag, our heads of departments and head of people. It’s all learning for them: ‘What do we do? What do you think?’”

-Female, Independent school

“Yes, probably with the higher Heads in the school and the Principal not knowing the full extent of how to run a farm properly and what it takes. I think they’re starting to learn how much time we put into it and how many students we’re getting to our school because of our programs.”

-Female, Independent school

“No, they (other staff haven’t come across welfare incidents) I don’t think cause they’re not down at the farms often they don’t seem to come across stuff.”

-Female, State school

“It’s left up to the ag teacher, the responsibility is placed on them, the Principal is involved dependent on how much value he places on it.”

-Stakeholder

The overwhelming sentiment from the agricultural teachers was, in their view, they committed more time and had more duties and responsibilities in their role compared to teachers in other subjects. Having overall responsibility for the welfare of the animals, means the time spent at school for ag teachers extends beyond many other teaching staff, even when taking into consideration the two periods a week given for ag preparation. In addition, the animal welfare duties and the surrounding procedures and documentation this required, add another pressure on their time.

“It’s quite busy, even school holidays. School holidays don’t exist for ag teachers.”

-Female, State school

“I am working with my teachers and farm assistant, with students, as well as my Head Teacher to coordinate the day-to-day running of the agriculture program as well as trying to look ahead with planning and programming to make sure that everything’s going to go as smoothly as possible for the next enterprise and how we’re going to budget. And so I take care of all of that.”

-Female, State school

“They are running the farm, dealing with industry compliance, plus weekend.”

-Stakeholder

“You know, there's 1000 things that come up over the course of the year, I have a list of mile long and it's just getting through those lists.”

-Female, State school

“Ag teachers have more skin in the game, they are living it and breathing it .”

-Stakeholder

The agricultural teacher's passion for the subject and teaching, specifically the practical aspects of students interacting with the animals in the ag plot or paddocks, endures them to these additional responsibilities. That focus on practical teaching also means any additional biosecurity measures that detract from time spent teaching, may only be accepted on a must needs basis.

“You get as much experience as you can, but it's not like a farmer where all of your time is focused on the stock, breeding and welfare. The stock is important, yet don't get me wrong, it's not my primary thing. My primary thing is teaching. And where the Principal expects your focus to be.”

-Female, State school

“My core role there is overseeing the curriculum and the teaching programs, whether classroom or ag plot based. I also look after the ag plot and because I'm the ag teacher, I am nominated as the animal welfare officer.”

-Male, Independent school

“It's something that we don't have time for like as a whole school. So unless I'm thinking about it, nobody else is.”

-Female, State school

“Having the time available to push energy into that is quite difficult. Just the involvement with the kids, they've got 40 mins in the lesson. And 10 mins to do foot washing, that's 10 mins less teaching. It's there as a consideration.”

-Male, State school

“It's such a busy curriculum, how much time and focus can they give it?”

-Stakeholder

When the role of students is considered in biosecurity preparedness and EAD awareness, maximising their lived experience in farm areas and with animals also increases the likelihood of

them understanding the biosecurity need and the measures required. They can then help play forward these learnings into the broader school community and home environment.

“I am a great believer that you can influence 20 kids in a classroom. They might be influencing 10 farms. That happens a hundred times a day around the country. So you know, I think it really is an important aspect in terms of community education.”

-Stakeholder

“When the kids go to see commercial enterprises it’s a real eye opener for them on the extent of biosecurity measures.”

-Male, State school

“Teachers are modelling to kids, the behaviours they take home.”

-Stakeholder

Experience of biosecurity issues

Although none of the teachers had experienced a biosecurity incident, other animal welfare issues had occurred which demonstrated relevant processes, even prompting risk planning, or conversely, revealed behaviours which would not be acceptable in the event of a biosecurity issue.

Where animal health issues were experienced, observation of the animal usually by the agriculture teacher or farm assistant led to further advice being sought, from a vet, by phone or visit, or in one incident, from other staff with more personal experience in the animal species.

“Depending on what it is. (The other ag teacher) specialises in the cattle side of things; her love is cattle. She’s a little bit more of a worrier than I am. I’ll try different things before I’ll call the vet. You’ve got to call because with the animals in schools, we’re under different legislation compared to just a normal farm.”

-Female, Catholic school

The behaviours which would be of a concern if there was a biosecurity threat involved animal disposal.

“We had to move this dead sheep. But I wasn’t able to get it to anywhere that it could be disposed of. Yanked it up into a wheelbarrow, covered it up with tarp and parked it down near the ag shed. A day later when the ag assistant was in, I told him what he was going to find in the wheelbarrow and then he dealt with it. Takes them to the rubbish tip; think that’s where they go.”

-Female, State school

Knowledge of disease threats

There were varying levels of knowledge amongst the agriculture teachers and other ag staff of the term ‘emergency animal disease’ (EAD) with a few of the more experienced being familiar with the prior used term ‘exotic animal disease.’

“No, I have not (heard of EAD). As in like an animal has, I don’t know, it’s an emergency. And animals like down or something. Now I’m going to go research. I kind of want to know.”

-Female, State school

“Yeah, I’ve heard of it (EAD). That’s like the notifiable diseases like Johne’s disease, mad cow.”

- Female, State school

“If I say that I think it’s more of a political one. I think that there are lots of diseases. Exotic means that it is from not here and emergency animal disease is one that is going to cause chaos and carnage throughout the whole industry.”

-Female, State school

The EADs mentioned as examples included:

Foot-and-mouth disease (FMD) was the most widely mentioned by agriculture teachers, given the outbreak in Indonesia last year. In some instances, it had triggered teachers to put plans in place and informed teaching students about the disease.

“Everyone always thinks of FMD. My concern is FMD and the risk that FMD brings because pesty something you can deal with but FMD — that’s a whole new ball game. There’s a risk that we could lose the animals on site and be closed down for a period of time.”

-Female, State school

Case study: Response to FMD

With FMD making the news, an agriculture teacher was prompted to conduct research using Google to search for biosecurity on farms.

Unable to find any specific school resources, she took guidance and a risk assessment template for farms and adjusted it to be relevant for the school. While she had difficulty recalling exactly where the risk assessment forms came from, she thought it would have come from NSW DPI. Signs were put up in school and biosecurity measures were implemented e.g., sign in and sign out forms for visitors from the nearby nursing home.

The teacher followed up the initiative by asking the Principal to send out the new rules/procedures in the school newsletter.

“We’re still continuing the biosecurity that we’d put in place and have just left it like that because nothing changes whether there’s a threat or not. It’s something now that’s there and implemented.”

-Female, Independent school

- Barbers pole worm in sheep was raised given the increase in wet weather and flooding which had resulted in many agriculture teachers increasing the frequency of drenching.

“Two of my ewes died from barbers pole worm. We changed the drench that we were using, I don’t know whether we over drench now because we haven’t had any deaths recently. But I just drench more often now.”

-Female, State school

- Varroa mites for bees was also frequently mentioned due to the continuing outbreak in NSW and cited as a good example of an EAD response.

“The updates that were provided by DPI and varroa mite I thought was first class. It relayed me to understand the pest and what we should be doing. It was clear, it was black and white. As far as not moving the hives: there were step by step processes of what we needed to do.”

-Male, State school

- Japanese encephalitis in pigs was recalled from the emergence of cases in NSW over the last year.

“That’s when you’ve got a notifiable disease... you have to notify if you’ve got certain diseases. With pigs at the moment, encephalitis is a major issue, so that would be a reportable disease.”

-Female, State school

Inconsistency in knowledge of disease threats may reflect teachers’ own perception of the relevancy, and the extent of the risk of an outbreak, due to the animals in the school farm. This supports the need for establishing general day to day biosecurity measures for prevention and reduction of risk, independent of the species threat.

Attitudes towards Biosecurity

Ensuring the health and welfare of animals

The teachers spoke equally about prevention and awareness as factors in ensuring the health and welfare of animals. Prevention led naturally to descriptions of reducing risk of harm to animals with practical matters, where animal observation was fundamental to awareness.

“Checking the animal welfare and making sure that they’re healthy in themselves so they don’t have any signs of pests or diseases; they’re walking correctly. We regularly check the weight of the animals as well.”

-Female, State school

“The most important thing for animal welfare is recognition of a sick animal, what’s normal and what’s abnormal.”

-Stakeholder

“I heard about it (FMD). I don’t know how you tell the difference between it necessarily and something like footrot. Because we live on the coast, it can be quite wet. I know my sheep’s feet aren’t always great because the ground isn’t always the best for sheep. When I’ve had sheep feet problems in the past, I haven’t had footrot, but I’m assuming it would be identical. But I would be

looking at the Internet to be honest. Looking at pictures. If I saw something a bit weird, I'd be on the phone too with my farmer friend telling me what it looks like."

-Female, State school

"Holidays are the toughest time, if the ag teacher is on holiday, the farm assistant is only part time, how can the animals be checked every day."

-Stakeholder

"We probably monitor and check the animals a lot more than a regular farm would. We do have a lot more people interacting and going to the shows, so that's why we have to monitor a lot more closely. I'd probably give us about an 8 out of 10 on where we're at if I'm honest."

-Female, State school

The importance of animal observation for animal health and welfare underpins teacher's commitment to seven days a week contact with animals and their sentiment of being ultimately responsible for the animals. This extends into their feelings of responsibility for ensuring the in-school community understood how to manage risk and prevent harm to the animals. (*See Prevention and Management*).

There was broad acknowledgement that biosecurity played a fundamental role in the prevention of health and welfare issues for animals and a healthy understanding of biosecurity threats in the high school environment.

"It's very important because if we don't know where our stuff comes from and they bring in footrot or scabby mouth or something like that, that remains dormant in the soil. Really important that we teach best practice."

-Female, Catholic school

"All very important because, if we don't do the right things, the animals get sick, it costs more money. The kids won't have the program that they love. And we need to be able to ensure their health like we do our own."

-Female, Independent school

"It's got to be top of the list for everybody. It is for me. We do what we think is right."

-Male, Independent school

"Schools are not aware of their significance (in biosecurity). Their role is bigger than they realise."

-Stakeholder

Knowledge and awareness of risks

Risks to biosecurity in high schools

The high school farm's biosecurity risks were consistently identified by agriculture teachers and stakeholders and can be grouped as follows:

People

Through contact with infected animals or being near them or contaminated soil or water, people become biosecurity risks.

- Students: The home could be in a rural farming area, a commercial farm, or a hobby/weekend farm. Travel to and from school (boarding or day) could be through risk areas. As with FMD, international travel for leisure to holiday or see family could be to high-risk areas. Aside from students with exposure to farms, other students may have pet livestock or hobby farm animals at home, usually chickens. Finally, the students may feed the animals prohibited food.

"Alarm bells rang 12 months ago when foot-and-mouth was talked about in Indonesia. Because our girls are travellers, often going away on holidays. We were a little bit nervous about what might return."

-Male, Independent school

"Students coming from their own farms and then use the same boots from their farm that could bring diseases in."

-Female, State school

"We've got kids that have got chickens at home. That's probably my only concern, really, when it comes to biosecurity at the farm, is them perhaps bringing something on that might cause a risk. All of our laying hens are all vaccinated."

-Male, State school

"I've got teenagers feeding ham sandwiches to pigs at lunchtime."

-Male, State school

- Other teachers: Occasionally mentioned as visiting to see the animals without consideration of risk (like students).
- Visitors to school: Including tradesmen and hobbyist. The interviewees identified visitors as being unaware of biosecurity measures that protect animals in farms, which can exacerbate potential risks if they have gained access to the farm through school staff who are unaware of biosecurity procedures.

- Local/School Community: School functions that allow the extended local /school community into schools were highlighted, organised by other staff without consideration to the risks the community would bring into the school, that could then be spread into the farm.
- Further, depending on the geo location of the school and the farm within it, there may be public areas adjacent to the boundary of the school farm which expose the school animals to other animals, prohibited pig feeding (PPF) and/or restricted animal material (RAM) feed risks by the public.

“Oh, there's a lady that comes in once a week and sits with the chickens with her disabled son. Other than that, it's normally just the nursing home. Come in every couple of days they'll bring some clients in and get them out of the nursing home.”

-Female, Independent school

“It can be a biosecurity risk in itself to bringing people on the farm, but there could be an area, you know, of a school farm and some Principals do this really well where they have a little BBQ area that's kind of associated like it doesn't mean you're traipsing all over the school farm but you know you have and that's where you might have end of term get together or something like that.”

-Female, Stakeholder

“We had a pet pig being walked around the periphery of our Oval. I asked them if their pig passed all of the mandatory paperwork. The owners said, oh, no, this isn't an agricultural animal. It's a pet.”

-Female, State school

Animals in schools

- Feral: Some agricultural teachers mentioned the risks presented by feral animals, especially birds, co-mingling with chickens and attracted by feed, and night-time animals such as foxes and rodents.
- Animals from home: This includes those animals who have concessions to be on school premises, namely wellness and therapy dogs, in contrast to those which should not be at school but had been brought on site by staff, with examples ranging from pet dogs to alpacas.

“100% (biosecurity practices flows through staff). We're all off farms, most of us. We've all got our own blocks, our own stock; generally bring our own working dogs to work.”

-Male, State school

“Other animals entering the farm: so there's a whole flock of birds. And then there's bin chickens, they're like a waterfowl but gets into everything. So it's mainly birds coming from other places.”

-Female, State school

“Our biggest problem with our schools? We've got rural problems in residential, so we've got rabbits and foxes and things like that, but we've got limited ways to eradicate them, so that's a little bit of an issue.”

-Female, Catholic school

Farm Specifics

Each school farm is unique, presenting ag teachers with a number of challenges, not limited to managing animal interactions and housing within the confines of the available space.

Location of the farm including housing and paddocks: How the farm is located relative to the school, close to shared pathways with the public and residential areas, pose a risk, particularly with seemingly innocuous handling and sharing of food that the animals are not meant to be eating.

- Additionally, the farm position within the school also dictates the extent of foot traffic around and potentially through the farm, when there can be potentially multiple entry and exits to the farm, exacerbating the risks associated with people being in contact with animals.

“It's impossible to control, given the sheer movement of kids”.

-Male, State school

- Animal movements: Animals being transported to and from local ag shows, or saleyards present considerable risk of exposure to environments they are not used to.
- Chemicals: While chemicals being used in the school farm are said to be well-documented, these were still mentioned as a risk by some interviewees.
- Feeds: Some teachers mentioned finding contamination within the feeds coming into the farm and enacting measures to reduce risk.

“The local feed supply was a bit loose in their biosecurity practices, just being one of those old school where feed store things just happen the way they happen type thing. So I started buying hay in big round bales instead of small bales. There was a cost saving as well as a you get one hay delivery instead of a delivery every week to reduce the risk”.

-Male, Independent school

- New animals: Be they permanent or temporary, quarantine was not always front of mind to negate the risk new animals may represent, especially in incidental circumstances e.g., accepting animals from farms closing, unwanted roosters from the public. Where animals are ‘borrowed’ as part of the school's ag program, such as calves, quarantine was more established before assimilating animals into the school farm.

“A rural school in an alternative community where Avian flu was discovered had a lot of birds going on and off site, birds being lent to the school....”

-Stakeholder

- Pests and parasites: Aside from the usual dangers presented by pests and parasites that are mitigated through prevention measures such as drenching and vaccinations, teachers recognise because of other risk factors, e.g., unauthorised feeding, contact with animals and people, other pest and parasites may be introduced.

- Plants: Biosecurity threats from weeds were often mentioned, the identification of which go hand in hand with animal welfare.

Not only do teachers take responsibility for the immediate farm specific risks, but they also feel ultimately responsible for all biosecurity risks, but do not have the support or time to effectively manage these whole of school risks.

Prevention and Management

Influences on prevention implementation

Whilst ag teachers understood the importance of biosecurity and recognise the potential threats, lower priority was given to ensuring widespread biosecurity prevention measures and having a plan in place. Instead, simple day to day measures were in place alongside mandated record keeping and registration i.e., chemicals, feed, NLIS, and Property Identification Code (PIC) registration. This was because of a combination of factors cited by teachers and stakeholders:

- Self-assessment of risk: Many teachers felt their school farm was at relatively low risk because, they did not have animals who attracted a high risk of a disease known to the teacher, their deep involvement with day-to-day animal welfare meant they were positioned to act if there was an apparent threat. This creates an issue in the event of the teacher being absent, temporarily or in the event of succession planning.

“I don’t perceive us to be in a huge risk area. If we were in Central NSW, and we had kids from all sorts of farms coming all the time, then we would have other plans in place. I just see myself as being low risk as far as livestock are concerned. I think that what we do is good enough at the moment.”

-Male, State school

“There is a lack of understanding and acknowledgement of the level of risk.”

-Stakeholder

“(implementing day to day practices to manage risk) far outweighs what the (biosecurity plan) document is going to tell me”.

-Male, State school

‘The more things you have (to keep track of), the less people use it.’

-Male, Independent school

Time: The extent of the ag teachers’ responsibilities, and the limited support they receive from the wider school staff, means time is scarce to spend on plans they do not think are relevant.

“The biggest barrier is time, it’s another admin burden.”

-Stakeholder

"I knew I was going to be asked if I had a biosecurity plan, I would like to get it done. There's just not enough time."

-Female, State school

Also mentioned was that increasing biosecurity measures, such as changing clothes or footwear, ate into teaching time and time spent with the animals.

- Risk factors beyond their control: It is clear ag teachers understand the whole gamut of biosecurity risks that can impact animal welfare, however there are many which are beyond the influence of control of the teacher, such as farm location, boundaries, and feral animals.

Knowing there cannot be complete and fail-safe biosecurity measures in place, may encourage the teacher perspective of focussing on the day-to-day measures, rather than broader proactive prevention measures.

"I'm sitting here looking at mats, there isn't one in and out point and the solution dilutes if they are outside, where they need to be, pointless to implement."

-Male, State school

- Cost: Trying to control risks beyond ag teachers immediate control was compounded by the cost of reducing those risks and implementing measures, most referenced being improved fencing, larger paddocks or more housing for improved animal segregation and footwear.
- Lack of a directive: In some instances, ag teachers as well as stakeholders felt the lack of directive, even understanding if plans are mandated or not, forestalls creation of biosecurity and prevention planning. Comparisons were made to emergency evacuation plans, bush fire or flooding plans which have Principal's engagement, higher profiles and schoolwide engagement.

"No one is checking unless a school is audited, they don't have to put the plan anywhere, it should be lodged with the emergency evacuation plan."

-Male, State school

- Continuity: For some schools, the viability of teaching agriculture fluctuates depending on student numbers and impacts the availability of ag plots. Some schools need to lease more land dependent on the subjects and animals taught that year, which may impact the extent of biosecurity prevention measures and plans can be implemented.
- Similarly, if there is a breakdown in succession of ag teachers, with other subject staff stepping in to teach, this can hamper the establishment of biosecurity measures and plans. It is widely recognised there is a significant shortage of ag teachers, which impedes knowledge and preparedness of biosecurity in schools.

"Sign up and accounts to LPA/MLA/NLIS are in an individual's name, one transfer of log in details was from someone who retired ten years ago."

-Stakeholder

"35% of the workforce is in agriculture, but there's a lack of agricultural teachers."

-Stakeholder

- Commercial agriculture expectations: It was noted the standard of measures and planning, as required by the Animal Research Act, are meant for commercial agricultural endeavours, which are completely different in complexity and scale to school farms. Templates for biosecurity management plans are sourced from a variety of websites, translated as far as possible, identifying measures for implementation in schools. The structure of the resources makes the task of adaptation less straight forward for the ag teacher.

“It’s not like a farmer where all of your time is focused on the stock, breeding and welfare. The stock is important, yet don’t get me wrong, it’s not my primary thing. My primary thing is teaching. And where the Principal expects your focus to be.’

-Female, State school

“Schools need tailored advice, as they are all so different, and different from industry. The rules and expectations are for commercial enterprise and not school specific.’

-Stakeholder

Prevention Measures in Place

The intention of the project scope and methodology was not to conduct a thorough audit of all current biosecurity practises and plans in place in each ag teacher’s school, rather, broadly understand the extent of measures top of mind for biosecurity and animal welfare, given the contributing factors to implementation. (As covered in the prior sections.) Below represent a summary of measures and their incidence.

Day to Day Measures

- Animal observation: Animal welfare is top of mind and comes hand in hand with animal health observations. Ag teachers generally share the responsibility of feeding with the farm assistant and will themselves cover weekends and school holidays.
- Not all schools participate in ag shows, and it appears less so since COVID. For those that do, monitoring and checking the animals is carried out more closely due to the increased interaction of the animals and people outside school.
- Hand washing: The simplest and least costly biosecurity measure, mentioned without exception, usually with a station within the school farm or classroom.

“That’s one rule the kids know about, no one’s allowed to leave, whether they’ve touched an animal or not, without washing their hands.’

-Female, State school

- Biosecurity fence signs: Low levels of mentions of biosecurity signs as opposed to other forms of signs, i.e., handwashing.
- Cleaning shoes, foot baths and specific footwear: Somewhat evident and used in schools, with a focus on this prevention measure more so last year, after the FMD outbreak in the Pacific region. Limited mentions of clothing or PPE, and then only for teachers.

“I have worked for a chicken farms..so I know about clothes specifically left on the farm.

and boots and stuff. So, I using the gum boots at the school is probably a good thing because you're not taking them out of the farm either.”

-Female, State School

- Visitors sign in: Variable, depending on the size of the school and the location of the farm in relation to where visitors to school usually sign in and if it is the same for farm visitors. The act of signing-in was not always effective in ensuring visitors take preventative measures

“I've given the front office, the biosecurity visitor register I constantly see, there's someone walking into the farm to check the fire extinguishers and I struggled to get them to get them to understand, you can't just let people in the farm.”

-Female, State School

- Compliance with NLIS and PIC registration, International Alpaca Registration (IAR), chemical and feed storage: These were all referenced frequently in relation to being important prevention measures, noting many of the systems only allow single user and log ins which restricts the sharing of responsibilities. Some schools who were utilising the freely available AgriWebb livestock management software program that does allow multiple users.
- Animal Quarantine: Where there was recent experience with the movement of animals into schools, mostly usually as part of a school project (calves or chickens) quarantine was referenced as part of that process.

Biosecurity Plan

Across the schools represented in the depth interviews, there was a range of compliance and awareness of having a Biosecurity Management Plan. Around a third admitted to there being no Plan in place, with some questioning, along with some stakeholders, whether it was mandatory at all.

“Probably should. Well, I don't know if I legally have to, but I know that I should have one that I don't.”

-Female, Independent school

For those who had Plans in place, the majority questioned some or all of the following.

- how comprehensive it was,
- how current it was,
- where should it be is kept
- who should have access to it and
- who should know where it is kept.

“Not a full biosecurity plan if I'm honest.....it's on our list of To do's for this year. I have discussed it with the Principal”.

-Female, State school

“It's an electronic document that I had no idea where to find and I had to get. One of my colleagues to e-mail it to me because I don't think I even had access to it on our system”.

- Female, State school

“Tick the boxes minimally to just cover my ass as much as I can... But do we have a solid biosecurity plan? No”... (looks for the plan and finds a document).. “I think I forgot I even had it as detailed as this”_

-Male, State school

“Whether people are fully aware of everything that's in that plan is probably not quite correct. I think it's only been updated once since we created that plan. (six years ago)”

-Male, State school

There were a handful of instances where the Plan was up to date, well documented and available to the greater school community.

“Very confident everyone has access to it and my faculty, so if I'm not around then I nominate or someone volunteers to be the farm manager in my absence”.

-Female, State school

The ambiguity of the requirement to have a Plan was also reflected in interviewee's knowledge about having one and/or the template to be used to develop a Plan. Some recalled templates may have been available from, Livestock Production Assurance (LPA), LLS, NSW DPI or Meat and Livestock association (MLA) which dovetails into the following section on Sources of Knowledge and the alignment there of.

“Standard templates from the MLA are best filled out with collaboration of a vet”.

-Stakeholder.

It seems teachers' focus on the day-to-day, management of the school farm, dealing with every day risk management and teaching so that there is little capacity to develop any prevention Plans beyond that for the benefit of the greater school community.

Responsibility for ensuring risk management and prevention

In School

Through insights into their roles and responsibilities it is evident that whilst ag teachers and other staff are part of a school community, in many instances they enjoy little support from within it. As a direct result of this situation the much cited out of school support networks have evolved (see *Sources of Knowledge and Support*.)

All ag teachers feel that the responsibility of ensuring awareness and the implementation of biosecurity practices at their school falls solely on themselves. Some felt it should everyone's responsibility, as with COVID.

A few ag teachers pointed to the Principal theoretically having ultimate responsibility as the head of school, albeit not carried out in practise for the majority, given the Principal's absence of actions and involvement with the school farm. There were some cases where the Principal or acting Principal

had a farming background, and consequently their involvement being piqued by more personal reasons.

“The Principal and Executive don’t want to know anything about it unless I’ve got a problem, basically”.

-Male, State school

“I was going to say the Principal. He will bring people down to show how amazing it looks. And you know, because we kind of stay on top of it and it is quite an inviting place and it’s exciting. But, that’s it. He just passes everything along to me”.

-Female, State School

“I think too that my Principal should be probably a bit more involved in biosecurity as much as I am the farm manager, he is the manager of the entire school site. Some of it does fall on him and he’s really great because he is very supportive of things like this where I bring my biosecurity plan to him and I talked to him about it and he’s all for it”..

-Male, State school

The stakeholders unanimously agreed responsibility for ensuring biosecurity and EAD planning lies with the Principal. Principals are already accountable for a number of whole school NSW DoE led policies and procedures, for example, emergency evacuations for bushfire or flood.

“Does stop with the Principal...but it all come back to the ag teacher”.

-Stakeholder

“Record keeping and sharing those details with the Principal...when teachers leave there is no idea”.

-Stakeholder

“Compliance varies due to it not coming down from the top”.

-Stakeholder

From a structural perspective, there was also comment from stakeholders that Agriculture in schools is placed either under Technology and Applied Studies (TAS) or Science (Fig 2). This can inhibit the allocation of support and responsibility for agriculture in schools. Interestingly, the NSW DoE organisational structure is subject led and Agriculture clearly sits in TAS within that government structure, highlighting the inconsistent management and support of agriculture as a unit of study across the state.

“Ag is sometimes in TAS, sometimes in Science, both can be good, but can mean ag is an ‘orphan’ as responsibility can be in either or neither place.”

-Stakeholder

Where ag teachers had a department head teacher other than themselves, some felt they were supportive and helpful in managing problems when they needed to be escalated. There was evidence that science teachers are sometimes called on as a backup resource for agriculture teachers, being in school five days a week, where agriculture teachers are not necessarily teaching classes for the full week, which could lend them to being part of implementing and monitoring biosecurity measures and across Plans.

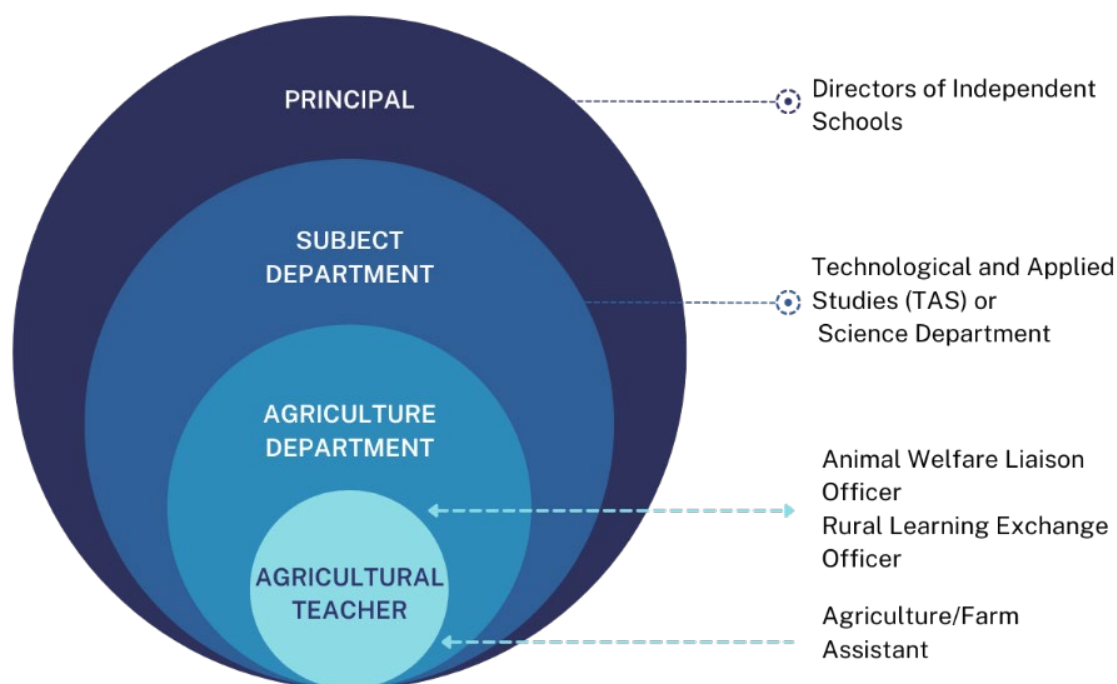


Figure 2. The hierarchical framework of Agriculture and Agriculture Teachers within the NSW Education system

There were examples given by ag teachers, especially in rural areas, of seeking help and support of teacher colleagues outside of the ag department, based on their personal experiences e.g. run a farm.

For schools that have larger agricultural departments, there is some confidence that biosecurity is discussed among the team in meetings and that there is shared access to documents and plans, both in hard copy and soft copy forms. Agriculture or Farm Assistants were generally likened to a science lab assistant, however as they are mostly part-time (3 days a week) and usually not qualified, they tend to have limited input and generally lower level of responsibilities.

The Animal Welfare Liaison Officer (AWLO) in schools is assigned by the Principal and likely also to be the ag teacher, but was not front of mind for most and not mentioned widely. The AWLO is responsible for the welfare of all animals in the school, not just those in the farm. If the role was separate to the ag teacher, this could help broaden responsibilities and help with objective assessment of a school's level of biosecurity risk.

It was noted that teaching the biosecurity modules, especially to Years 9 to 12 is one way to ensure basic awareness for students. Some teachers felt that involving the students in writing up the farm map and going through the biosecurity management planning templates and checklists made sure the students understand and realise what they need to do. Involving the people who will need to follow the plan in the design, increases buy-in.

“They might as well go out as prepared as I can get them and by demonstrating best practice there, at least on the front foot in that way.”

-Male, State school

“Kids at school should take home good practise, it’s a community issue. It starts with the school children to entrench behaviours of animal treatment, welfare and biosecurity.”

-Stakeholder

Within the NSW Department of Education (DoE)

Aside from supporting teachers within school to ensure biosecurity knowledge, awareness and prevention, it was acknowledged by stakeholders that the NSW DoE non-teaching structure, does not lend itself to a focus on biosecurity.

“Beyond them (Principals) it’s hard to pinpoint a single unit responsible for biosecurity, (individuals) have taken it on, but are not responsible.”

-Stakeholder

Given the risks identified to biosecurity in schools as well as subject and report lines, the following do or could have a role to play within the NSW DoE:

- Animal Ethics Committee: Biosecurity is a job they have taken, and they are potentially best placed given their school links and visitation, but they currently have no reporting role.
- Educational Director (of subject areas): Agriculture currently sits under TAS.
- Health and Safety Department
- Compliance
- School infrastructure (new school designs)
- Director of Curriculum
- Director, Educational Leadership (each responsible for 10 schools/Principals.)
- Communication and Engagement Directorate

Within the NSW DoE and these areas of responsibility, only the Animal Welfare Coordinator role is cross sectional spanning independent and religious schools too (only other role is anti-bullying), a further area for consideration.

Sources of Knowledge and Support

There was clear delineation on NSW State department roles, with a network of other sources accessed for information as shown in Figure 3.

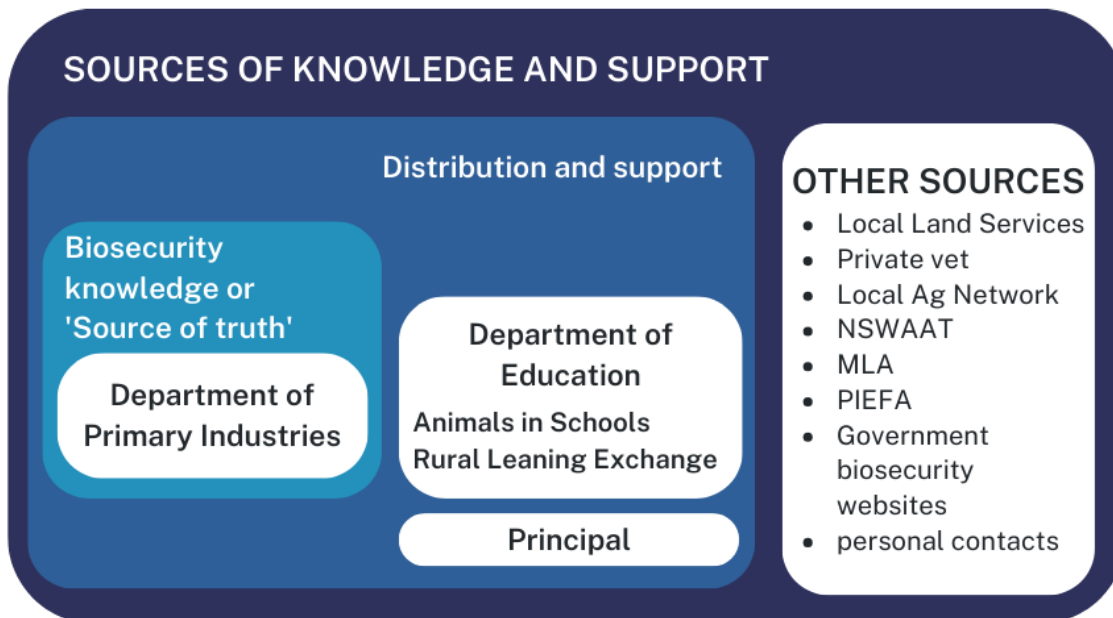


Figure 3. Sources of agricultural knowledge and support for agriculture teachers in NSW

- The NSW DPI is viewed as the primary source of information. They look to the NSW DPI to lead in EAD information dissemination, biosecurity expertise and best practice and are responsible for the delivery and the uniformity of all messaging.

“When you go on to the DPI website, it’s just kind of like the current stuff, but I know that there’s a lot more other diseases that we should be more worried about, but I just haven’t come across it just yet.”

-Male, State school

“I know they’ve (DPI) got an emergency response... they update that quite frequently, So I know that they’ve got all the information up there.”

-Male, State school

- The NSW DoE resources were most referenced as sources of ongoing support and acknowledged as being important in the event of an outbreak, specifically Animals in Schools run by the NSW Animal Welfare Officer and the Rural Agricultural Network, Network Facilitator.

“Animals in Schools website most accessible, easy to read, especially for the kids. Leans more on conservative side, especially for smaller schools. I would ring Sally Bannerman, as she’s first port of call.”

-Female, Catholic school

“So if she (the Rural Ag Network Facilitator) set out a directive, she’s got a lot of teachers on her contacts. She’d be a good person to work with, to get the message out and to get information and support to achieve the biosecurity plan.”

-Female, State school

“The Animals in Schools website is ‘critical friend advice’ interpreting the animal welfare policy.”

-Stakeholder

- These two resources are acknowledged by the NSW DoE as invaluable in supporting Ag teachers in the absence of internal school support, in NSW as well as other audiences in other states. Their success is driven by the NSW Animal Welfare Officer and the Rural Agricultural Network Facilitator respectively, both of whom have complex reporting lines and funding. There appears to be an addressable gap of contingency planning in case they should they go on leave or move on from their roles.
- Reference to Local Land Services (LLS) support was more prevalent than expected. Ag teachers had contacted LLS as a resource to discuss potential animal issues, help connect with a vet, act as a training provider in collaboration with vets, as well as providing the pathway to a government District Veterinarian (DV). LLS was mentioned alongside (even interchangeably with) NSW DPI.

“I think that LLS got more experience. They’re probably the finger on the pulse a little bit more than anyone else for taking action and try to come up with a solution.”

-Male, State school

“LLS is ideal support for farms in schools.”

-Stakeholder

“We wanted to know what we could do to put in place while at the show to minimize the risk of potentially infecting our animals with FMD. So the Ag coordinator got in contact with LLS and they gave us information and then said actually we could run a seminar for you.”

-Female, State school

- The local vet in most instances was used for ongoing support of animal welfare, both proactively e.g., for routine vaccinations, and reactively if there appeared to be an issue with a school farm animal. For some ag teachers, large animal vets have been problematic to find, which is when the LLS may be contacted. In some instances, the vet had helped to complete and make relevant to the schools the Biosecurity plans, and this was advocated by stakeholders as being best practise collaboration.
- Local ag networks and NSW Association of Agriculture Teachers (NSWAAT) provide connections for ag teachers (members only) in the absence of an internal school network, by way of a knowledge resource and in the organisation of local events and meetings.
- Meat & Livestock Australia (MLA) and Livestock Production Assurance (LPA) were key for schools with commercial endeavours for trade compliance and both were referenced as a potential source of Biosecurity Plan templates.
- The Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF) was made mention as providing information on disease identification.

- The Primary Industries Education Foundation of Australia (PIEFA) was not front of mind for support for biosecurity issues and potential EAD outbreaks.
- Personal contacts of family and friends with farming interests or backgrounds were also a point of reference.

Outside of the above partner associations, identified by teachers, the stakeholders suggested other potential sources of knowledge and support:

- Royal Agricultural Society (RAS): It appears this is used as a sounding board to teachers, following interactions after provision of education support such as Ag in a Box, animal husbandry competitions and farm excursions, although it does not implicitly support in school biosecurity prevention and was excluded from the Deep Dive review as a result.
- Animal Ethics Committee: Viewed as having important school connections due to the school visits, with the schools selected independently for a visit or prompted for a visit by an incoming Principal or through reporting of a potential issue. Only a handful of the ag teachers acknowledged they had been visited.

Communication Pathways: Current and Potential

Coupled with the sources of information and knowledge, there are clear preferred communication pathways for ag teachers that fit the following criteria:

- Accessible to read at a time convenient to the teacher, i.e., out of teaching hours.
- Easy to download or bookmark for future reference.
- Easy to forward and share with other interested audiences.
- Easy to access relevant information i.e. via embedded links to online resources.
- Succinct and focussed on key relatable information.

Current Pathways

Utilising current in school communication pathways identified by ag teachers, rather than creating new ones, to expand knowledge, awareness and implementation of biosecurity measures and plans, would maximise impact whilst minimising effort.

- Email: Frequently mentioned as key for receiving information and updates on all matters relating to teaching agriculture:
 - The Animal Welfare officer sends a newsletter each term to a list of 300 teachers.
 - The Rural Ag Network Coordinator has 420 teachers in her network who receive a fortnightly newsletter.
 - Other mentioned email newsletters included PIEFA, LLS and NSW DPI, which was called out for how well they communicated the varroa mite outbreak.
- Online networks: Important for passive and active communication:
 - The Animals in Schools website (old version) received 2,000 hits a day from teachers across all three sectors as well as non-teachers and supports a variety of resources including videos.

- The Rural Ag Network content, using Teams, is 50% posts by the Network Facilitator, and 50% shared content as the members are encouraged and empowered to support each other through sharing content, posting questions and answering other teacher's queries.
- Other online websites: Utilised to search for information, Hotline number, forms, and teaching aids. The call out here from stakeholders for other partner websites is the challenge of ensuring all content, outside of NSW DPI and NSW DoE, is coordinated and monitored for accuracy. E.g. NSWAAAT Facebook page where questions and answers are posted but unmonitored.
- Posters: Provided digitally on information screens in schools and in hard copy for placement around the school, providing cues, reminders and noise on biosecurity awareness, behaviours and contact numbers.
- School community: It was apparent rather than school communities using the school's official websites, schools have vibrant and engaged virtual communities on Instagram and Facebook, and animals are appealing content.
- Meetings: Those mentioned were delivered by other partner sources, including LLS and local ag network, rather than any in school meetings pertinent to biosecurity generally, with the exception being during the FMD scare when it was discussed in staff meetings.
- Training: As noted in the 'sources' section, LLS, vets and local ag networks were specifically mentioned as organising biosecurity training. Otherwise, there was evidence online materials, especially video content or clips were accessed to augment biosecurity knowledge, awareness or prevention, including of the Rural Ag Network Coordinator which led the ag teacher to the Network.

Existing Pathways

Feedback from stakeholders, teachers or elsewhere on other existing communication pathways which are available but not mentioned by ag teachers and perhaps underutilised are detailed below.

- Training:
 - Professional Development Days (5 a year) are mandated and scheduled on a variety of topics and can be all teacher activities or particular for subject areas.
 - NSW Education Standards Authority (NESA) 10 hours accredited training is utilised as a training resource for other subjects.
 - NSW DoE departmental training not otherwise covered.
 - Specific biosecurity training developed for staff handovers within the ag department, when other subject teachers cover ag teaching, or Animal Welfare Liaison Officer (AWLO).
 - Straight to the Directors, Educational Leadership who act as a conduit into their Principals and to whom, the Animal Welfare Officer presented and demand grew by word of mouth.

“There is currently no training in place and looks like the only person who’s seen the plan was the Principal who signed it off at the time. It is something she needs to do with rest of the school. Start with staff, half an hour to 40 mins.”

-Female, State school

- Other NSW DoE resources
 - The Statewide staff room could be used for specific biosecurity awareness or EAD communication.
 - The Staff Notice Board managed by the Comms and Engagement Directorate has various functionality where groups can be created or tagged.
 - School computers and laptop sign in screens or screen savers could carry urgent or reminder Biosecurity, knowledge, awareness or prevention messages.
 - Science week in August appropriated for Biosecurity sessions.
- Services NSW app: Utilising geo-targeting communications strategies as seen with COVID biosecurity or EAD alerts could be sent.
- Meetings:
 - Combine information and socialization with other ag staff either online or in person using NSW DoE or partner resources such as RAS, PIEFA, NSAAT (who have 6 meetings a year and a biannual conference)
 - Within schools utilise staff meetings, assemblies and other meetings to communicate biosecurity to the greater student body and staff community.
- RAS: The organisation has a 82% click through on their monthly emails, utilising a PIEFA distribution list doubled response rates overnight.
- Animal Ethics Committee: The committee have taken on responsibility for monitoring biosecurity measures and planning through their school animal welfare visits, could their role be expanded with more visits and reporting responsibility.
- AgriWebb: Currently freely available to schools and with take up increasing, the app has a Biosecurity Plan which could be exploited in partnership.
- Merchandise: Magnets, keyrings, stickers for cars, basins, soap dispensers, mugs could carry simple biosecurity relevant messaging to where they are kept/used, e.g. Mugs and fridge magnets “now wash your hands.”
- Whilst there are clearly benefits from having multiple partner networks and associations to utilise and support biosecurity efforts in schools, along with many existing communications pathways, the challenge will be to employ them in simplistic and coherent way whilst ensuring consistency in raising knowledge, awareness, and biosecurity practises in schools.

Co-design workshop

A co-design workshop is an inclusive, interactive approach to taking information and transforming it into actions or materials. The objective of the co-design workshop was to review the in-depth

interview findings and identify tactical, practical, simple, low-cost behaviour change intervention to support surveillance and early detection practises in schools.

The workshop took place over Zoom, where the n=16 participants representing NSW DoE, NSW DPI and ag teachers were divided into three teams, each to brainstorm ideas on one of the topics detailed below. The presence of the ag teachers in each group was key for the other stakeholder attendees to understand the context and day to day realities and responsibilities of teaching ag in high schools and hear how best to ensure the successful rollout of solutions.

The topics for the co-design breakout sessions reflect the elements of the findings where tactical, practical, simple, low-cost behaviour interventions can support surveillance and early detection practices in high schools (Fig 4).

Also to be considered:

- How to engage and coordinate with the partner network
- Which communication pathways could be most effective for the purpose.

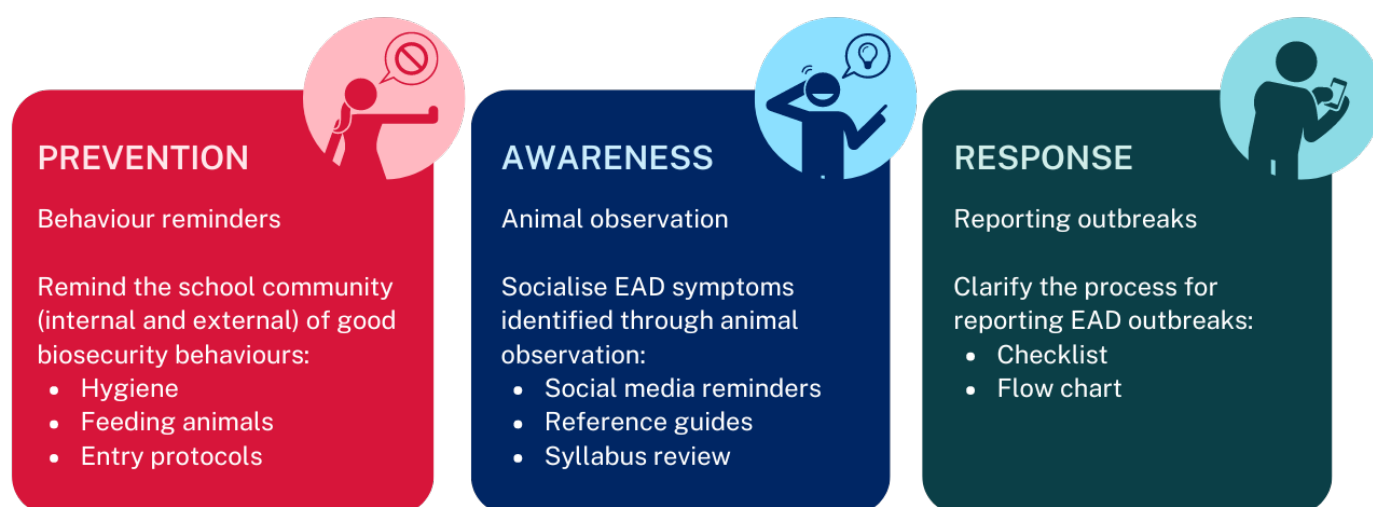


Figure 4. Topics of investigation by teachers and subject matter experts in the co-design workshop.

PREVENTION: Remind the school community of good biosecurity behaviours

Audience

It was recognised the school community incorporated both internal and external audiences and that all schools are different, so the messaging for reminders must be broad.

Three key **reminders** of good biosecurity behaviours were identified:

1. **Hygiene:** Good hygiene behaviours start at home, are brought into the school and flow from the school to the school farm, reflecting the sentiment that biosecurity is the whole school community's concern. Additionally, hygiene has feasible, cost effective and practical, behaviour measures e.g., hand washing, whereas other measures are more dependent on specific school environments and costly, such as foot bathing, establishing single exit and entry points and providing hygienic clothing.
2. **Feeding School Farm Animals:** Feeding was highlighted as a behaviour concern in the social research findings, for both internal school stakeholders and externally, where the public can

access school farm animals at the boundary. The focus is to remind the community what constitutes people food as opposed to animal food, and the risks for animals if they are not fed animal food.

3. **No Entry to School Farm:** It was felt a reminder was needed that being on school premises, for both internal school stakeholders and external visitors, did not assume entry into the school farm, as it carried with it, subsequent biosecurity threats.

Communication tools

1. **Hygiene:** Whilst there are already many posters in schools generally and in ag classrooms specifically, posters on hygiene placed about the school, in ag classrooms and on-farm, can act as a continuous reminder to staff, to remind students, and create good hygiene habits. Otherwise, it is for teachers to model behaviours in a consistent and integrated manner, linked to the syllabus rather than it being an additional in-class activity, when time is already stretched.
2. **Feeding School Farm Animals:** The suggestion was again for posters, on the farm and in the ag classroom and for the poster image to also be provided to post on the school Facebook site, identified in the social research findings as a much used and viewed communication resource for the school community, more so than the school website itself.
3. **No Entry to School Farm:** There was agreement that the NSW Government Biosecurity signage (and supplied by Local Land Services [LLS]) was currently underutilised in the school farm environment, in contrast to commercial farms. Providing the signage to schools would encourage its display and proper visitor procedures being carried out before entry to school farms.

Messaging and Imagery

1. **Hygiene:** Posters need to be factual, simple, and visual, with the idea that altruistic messaging delivered by a range of young farm animals to 'keep me safe' could appeal.
2. **Feeding School Farm Animals:** These posters would be aligned with the hygiene posters for style and approach.
3. **No Entry to School Farm:** It was felt the contact number on the sign would be useful, with the designated contact being agreed by the school and aligned with NSW DPI requirements, e.g., ag teacher, farm assistant, animal welfare officer, LLS officer or District Veterinarian (DV).

Recommendation

Outside of the behaviour reminders and as an activity to raise the awareness of the risk of biosecurity outbreaks, an all-school biosecurity drill, in the style of a fire drill, was suggested. The drill, as part of broader 'Agriculture Day', or standalone 15 minutes at the end of assembly, would engage and excite students, and remind them of the consequences if good hygiene behaviours are not observed.

AWARENESS: Socialise EAD symptoms identification through animal observation.

Audience

Whilst the main onus for observation is on agriculture teachers and students, there is also a need to educate the greater school community and public, who observe animals at school boundaries and as a result report their concerns to the NSW DoE.

Three interventions for **socialising EAD symptom** identification through observation were proposed:

1. **An easy reference, what to look out for guide:** It came to light the NSW DPI already produces guides in an adjacent topic, UTE Guide for Weeds, an EAD investigation guide for vets, and in collaboration with the National Meat Industry Training Advisory Council Limited (MINTRAC), a glovebox guide on Biosecurity, Emergency Animal Diseases and preparing livestock for transport.
2. **Include in the syllabus:** Embedding identification of EADs in the curriculum provides students with the knowledge to take to their home farm or farm animal environments, reflecting the sentiment in the social research that biosecurity awareness and prevention can cascade out of school into the broader community.
3. **Provide the school community with reminders:** Reminders on the identification of EADs and the correct process for reporting can help focus the community on diseases of concern, rather than other perceived ailments.

Communication tools

1. **EAD Glove Box Guide:** Making the Biosecurity, EAD and Livestock Transport Glove Box Guide available to ag teachers in hard and soft copy means it can be used as a reference resource in the classroom by ag teachers and students.
2. **Upcoming ‘have your say’ draft syllabus review:** With an upcoming review to the syllabus, there is the opportunity through the NESA ‘have your say’ process to propose an increase in biosecurity content broadly and EAD identification specifically. The review is open from the 14th to 28th August for science years 7-10. <https://education.nsw.gov.au/teaching-and-learning/curriculum/nsw-curriculum-reform/have-your-say>
3. **Social media:** By providing cut and paste content for schools to post on the school’s Facebook page and Instagram account, which are more widely accessed by the school community than school’s websites, ensures consistent messaging and removes the burden of producing content from ag teachers.

Messaging and Imagery

1. **EAD Guide:** Receiving collateral in line with vets creates a sense of gravitas, however the language used for the content may need reviewing given its technical nature.
2. **Inclusion in Syllabus:** Stakeholders providing input into the NSW Education Standards Authority (NESA) consultation process can utilise the Guide content to steer input for inclusion of EAD symptom recognition.
3. **Social media:** Cartoon animals rather than shock visuals would be more palatable to animal welfare groups, with messaging suggestions including:

- Humanising the animals ‘This is Bob...’
- Case studies of EAD events in schools given the lack of understanding the extent of risk attached to an outbreak in a school.
- Number comparisons such as ‘It only takes 1 person to save 1000 animals’, or ‘Only 1 needs to die.’

RESPONSE: Clarify the process for reporting EAD outbreaks.

Audience

The key focus audiences for this intervention are the ag teacher, Principal and the NSW DPI communications team themselves. Students are not included, as the reporting needs adult oversight given the seriousness of an EAD outbreak and the official nature of reporting. It may also be deemed inappropriate for some phone numbers included in the reporting process to be available more broadly in the school.

Two ideas for ensuring the exact **process** are followed for reporting EAD outbreaks were tabled:

1. **Flow Chart:** The flow chart would outline what must be done and who needs to be contacted (phone tree), in the appropriate order. The flow chart will have blank sections so school specific information, such as DV’s number, etc can be added. It will include timeframes for each stage/step with responsibilities noted. The flow for process was suggested as:

- Stage 1: Communication pathway: Teacher calls hotline, informs Principal: Actions: Close farm → isolate affected animal → isolate kids that have had contact → assess any recent animal movements* → spill kit type/mechanical interventions → online form filled* → photos uploaded.
- Stage 2: Communication pathway: Principal informs Director, Educational Leadership (DEL) → NSW DoE Work Health and Safety → Animal Welfare Officer → who liaises with DV → other ag staff informed. Action: Lock down school.
- Stage 3: NSW DPI and DV on site and implement processes, liaising with ag staff and Principal. Dept of Health visit, NSW DoE / NSW DPI media and legal teams engaged.

When directed to the online form, if Animal health and sick, dying or dead animals are selected, you cannot complete the form and are directed to the EAD Watch hotline

<https://forms.bfs.dpi.nsw.gov.au/forms/9247>

*** NLIS database username and password should be available with flow chart/checklist.*

2. **Checklist:** The same process for the flow chart except presented as a checklist template to be completed, signed, dated, with comments and details of who reported, including the relevant phone numbers e.g., local private veterinarian, DV, EAD hotline, relevant NSW DoE departments and contacts and Principal.

Communication tools

1. **In school:** Displaying posters of the flow chart in teacher only areas, such as the staffroom and staff noticeboard not only provides easy access to the resource but also increases

awareness of the risk, given the actions that have to be taken in the event of an outbreak. Copies of the checklist would be held in the school office and ag staffroom.

2. **Online:** In addition, utilising the communication pathways that ag teachers consistently use as resources will maximise distribution e.g., NSW DoE Animals in Schools website, Rural Agriculture Network, and the NSW Association of Agriculture Teachers (NSWAAT).

Recommendation

Thought needs to be given to which phone numbers are included in the flow chart or checklist as examples were cited of the loop not being closed between the NSW DPI Hotline and NSW DoE stakeholders depending on who was first contacted when incidents occur. Also, if the EAD hotline was given out more broadly, calls may increase and be less specific to potential serious disease outbreaks.

Communications testing

Summary of Collateral

With the emphasis on tactical, practical, simple, low-cost behaviour interventions, key awareness and guidance resources* were identified and prioritised for the communications testing against the topic areas:

Response	Checklist for reporting a suspected EAD in the school: 2 executions: Example A and Example B.
Prevention	Visiting School Farm Poster (2 executions) Signage: Internal School Farm Fence (2 executions) External Fence Feeding Sign (2 executions) External Entry Point Signage (1 execution): NSW DPI and LLS official biosecurity signage for external entry points into biosecurity areas.
Awareness	Glovebox Guide: Biosecurity, Emergency Animal Diseases and preparing livestock for transport.

**Collateral in Appendix except for Glovebox Guide*

Reporting checklist

Example A

It was acknowledged the checklist provides a renewed clarity on what needs to occur in the event of an EAD. The sequence of events presented validated existing knowledge surrounding biosecurity procedures. Example A was iterated over the course of the testing, with earlier feedback included and feedback on the final version summarised below.

Likes	Areas for Improvement
Checklists are informative, everything required is listed and all it puts all the necessary information in one place.	Space for more than one vet.
For anyone unfamiliar with the procedures, who is not fully aware of all the details that you'll need in an emergency, in stressful times or particularly if the ag teacher is not around, it is nice to have something to follow.	If to be distributed as a digital copy, add links to more information.
Space for comments.	Space for the Head Teacher rather than just the Principal, as they are not always available.
Space for their own Local Land Services number that they can fill in themselves.	Formulate as an editable PDF format.
Good layout and easy to fill in, gives you guidance what you need to record.	More information on what happens next, like the example of a steer thought to have anthrax but turned out not to be.
Not too wordy.	A section to write very clear instructions on what the vet advised, to ensure it is relayed back to those not present
Includes the emergency hotline.	Add a section about recent stock or people movements (e.g. people who've been to other farms like the shearer).
Includes the IAR# for alpacas.	include into the school's biosecurity plan.
Important numbers to call are included and highlighted.	Include Animal Welfare Coordinator's number at the front page and the Animal Welfare Liaison Officer of the school.
Prompts to take photos.	Include Animal Welfare and Ethics committee's details or Animals in Schools (as it is the same number that private schools can also call).
The top fields can be pre-filled, so when the ag teacher is away, the next responsible staff member already have some of the basic information to hand.	Draw attention to the 1300 number for LLS by placing it at the top/front near the EAD hotline.
	Ensure acronyms are spelled out within the document and include a glossary of terms at the end.

There was general agreement the checklist would be easy to follow by other staff, since it is self-explanatory and numbered, however other staff would generally be intimidated with animal related emergencies and may also struggle with identifying the EAD (where the Glovebox Guide would be useful).

All elements of the checklist were deemed important, particularly the sequential aspect of the list and:

- Who needs to be notified, what order they should be notified and what priority each have.
- The information you need to know before you contact the LLS, a crucial escalation point that needs expertise and assistance beyond school level.
- That photos need to be taken of disease signs on the animal.

Example B

Whilst having the involvement and guidance of the district veterinarian (DV) was appreciated in Example B, most of the initial reaction was a feeling of being overwhelmed with the amount of information to read.

Suggested improvements: General

- Very wordy compared to Example A, adding a space would help break up the dense text.
- No section for comments, overall sign off section, or IAR# for alpacas.
- Boldface important words to make them stand out, e.g., as with Step 4, the phone numbers, notify authorities.
- Include a notification of who will follow up on the incident.
- Add a flow chart to clearly view how the process works. The flow chart could be in an A3 poster format, to include general information for people to plan and anticipate how the procedures are likely to happen.

Suggested improvements: Specific

- Point B reference to the school farm manager needs to be clarified as can be either the farm assistant or supervisor or the ag teacher, although most ag teachers are also the farm manager.
- The phrase setting up 'decontamination check points' at Point E could simply be referred as 'farm exits.' Need more clarification on setting up decontamination points and would want to know what happens after or the outcome of when samples are taken for testing.
- Consider revising Point F, *The LLS DV will be your primary point of contact throughout*, as it appears not to be part of the workflow, just an overall statement.

Checklist Preference

There was acknowledgement that Example A was a simple checklist with the emphasis on reporting immediately, whereas Example B acted more as an instructional sheet which included an element of in school consultation first, taking away the potential of calling in an emergency when it is not.

Therefore, combining the simplicity of Example A with some of the detail of Example B would be the most preferred providing guidance for both ag teachers and other staff:

- Adding Step 3 Notifying Responsible Staff Member from Example B into Example A can prevent a situation from getting unnecessarily escalated by checking first with the person who is familiar with the animals.
- Place the Likely Response steps within the same document as an addendum or accompanying flow chart.

There was scepticism on whether the Principal would use either form, with the expectation it would be delegated back to the ag teachers or the farm assistant to follow and fill out.

Accessibility to the checklist

To the school

The preferred communication pathway to ag teachers reflected the depth findings, to provide the Checklist through the **Rural Agricultural Network** given Sam Jarrett's Network communicate and share resources through MS Teams. Whilst the Network has a fair majority of private and public teachers, it is noted that through the project, there have been incidences of ag teachers not being aware of it.

- Make the Checklist available through the **Animals in Schools website**.
- Post in a **bulletin** that goes to the Principals i.e., as with varroa mite information from the Bee Keeping Association and the Principal, who ensured they received and have read the information.
- Include as part of completion of **annual requirements** for the school:
 - Accreditation
 - Animal research / animal welfare authorization, where everybody who works with animals in the school has to put their name against the authorization. This is a good reminder to check if any of Example A details get updated during this time as well.
 - The checklist could also form part of the mandatory training (i.e. corruption, security breach training, etc), and refreshers can form part of it, instead of just signing your name against the authorization form.
 - Include as part of the **audit** for animals in schools: keeping records of births, deaths, dosages, stock movements. Some have an app for record keeping activities which the checklist could be part of.

Within the school

- As a chart on **information boards** in the farm office, faculty and school's office, the machinery shed and the front office.
- Include alongside the **registration form** of where chemicals are in the farm.
- A digital soft copy available in the school's shared drives.
- **Train** others like the farm assistant, other ag teachers, or the science department on where the hard or soft copy of checklist is located or saved.
- Periodically conduct EAD **drills or practice procedures** to increase familiarity across all staff.

Visiting School Farm Poster

There were explicit, contrasting styles to the two poster executions for review, Poster 1 being cartoon and Poster 2 being infographic in style. Both styles of posters iterated over the course of the testing, with the overall feedback summarised below.

Poster 1

Likes	Areas for Improvement
'Come Clean Go Clean' stands out and is in the middle and yellow, all of which attracts attention. Clear, gets a simple message across. Not big and blocky with too much text. Cute pictures, bright and fun colours to appeal to younger audiences. 'Leave gates as you find them' is an important message, there is a reason why gates are left closed or shut.	Perceived too juvenile for high school students (i.e., images and language such as 'Biosecurity Baddies' more suited to primary school students.) Font was a little harder to read than that used in Poster 2. Format and spacing not as pleasing as Poster 2, with the middle section not well utilised with less information and more pictures. The main message of 'Come Clean Go Clean' needs highlighting with a border or stripe to separate it from the rules. Ag teacher is male, when most are female.

"The middle part where it says Come Clean, Go Clean is great because I use this with my kids."

-Female

"It needs to be modified for a higher age group. The term, "Biosecurity Baddies" is not going to work for older students. They need to start being introduced to terminology used in the industry at this time."

-Female

Poster 2

Likes	Areas for Improvement
More age-appropriate poster for older students in terms of font and wording. The images used are more accurate, formal looking and appealing, to draw attention and engagement. The 'Talk to your teacher if any concerns about health of the animals' phrase. It does not dictate behaviour; the instructions are fantastic. Use of the phrasing 'To and from': suggests it is not a one-way concept. Use of 'Our animals': more personal and specific about what they are being protecting from. 'Come Clean, Go Clean' as the headline. Font is easier to read than Poster 1	Very blue, monochromatic colour, which needs to be more eye-catching utilising another colour. Needs some red or alarm bells to signify alert e.g. like a biohazard sign which uses red, black, white. Cross signs need to be red. Split the elements of the Poster to place next to where they are relevant e.g. stickers of the bin goes on the bin, messages about the gate on the gate, hand washing on the hand sanitizer or the taps.

Likes	Areas for Improvement
Overall, looks more serious and so expect readers to take it seriously.	

Visiting School Farm Poster Preference

It was agreed, both posters were reinforcing concepts students already know about farm rules. Overall Poster 2 was the preferred execution:

- **Style:** The anticipated reaction was older students may not take Poster 1's cartoon style seriously, perceiving it to be aimed at younger students. However, the cartoon style was also acknowledged to be livelier and eye catching, because of the animals, albeit more childish.
- **Colour palette:** Thought needs to be given to Poster 2 colours, as they were deemed monochromatic, whereas Poster 1 had an engaging colour palette more associated with danger and alert.
- **Messaging:** 'Come Clean Go Clean' was well received: it stands out, memorable and catchy. Using 'our' and 'you' convey a sense of inclusiveness and shared responsibility. It was noted there was inconsistency between message elements, some having a reason behind the message, whilst others were 'behaviour rules' without explanation.
- **Branding:** Including the NSW Government logo emphasises the official nature and authority of the posters.

It was suggested both poster styles could be utilised for older vs younger student's areas within high school. Alternatively, Poster 1 could be situated in the classroom given the cartoon style of the animals will capture students' attention, whilst Poster 2's more official style was better situated at the school gates.

Consideration could also be given to utilising the cartoon style posters (and signs) in primary schools which fall outside the remit of this study.

Accessibility of the poster

It was felt the Visiting School Farm Poster should be situated at multiple locations in schools to maximise impact including:

- The front school gate, visible as everyone enters and accordingly, weatherproof.
- Where students and visitors sign in (i.e. central support unit) before they are allowed on the farm.
- High traffic areas such as doorways and congregation areas.
- In the ag classroom, at hand cleaning stations and in the ag plot.
- Generally, in all non ag classrooms and on all notice boards around the school to have wider audience reach.
- Featured occasionally in newsletters.

For the effective implementation of the poster within schools, the onus on the ag teacher should be considered, given they are already time poor. Whilst there was some openness for the posters to be

available through central websites such as Biosecurity in Schools or Animals in Schools, accompanied by an email to let all know they are available, the responsibility would then fall on ag teachers.

If the posters (and signage) were provided to school Principals by either the NSW DPI or NSW DoE, possibly as a biosecurity pack for schools every year (potentially to accompany the checklist, and the Glovebox Guide), responsibility for implementation then rests with the head of school, which echoes the sentiment previously covered, of the need for their involvement in biosecurity efforts.

Additionally, providing the posters (and signage) collateral to the schools, rather than then being printed out in schools, ensures they are produced in durable materials, such as corflute (lightweight weatherproof corrugated signboard), hard plastic or metal.

Signage: Internal School Farm Fence

The Internal School Farm Fence signs were presented, as with the poster executions, where Sign 1 was cartoon and Sign 2 infographic in style.

Sign 1

Likes	Areas for Improvement
Compared to poster executions that use 'Baddies', 'Diseases, Weeds and Pest' s more direct, less subjective and are terms older students should know and be using.	Add a big cross on the things students should not be doing (i.e. do not handle animals without permission.)
The yellow at the top is eye catching.	The format of the poster seems less balanced than Sign 2.
	The images and font combine to give a messy and jumbled appearance when clarity is key to gain audience's attention.
	Short, clear messages would present a more authoritative tone.
	Cute / fun / 'optional' would be more suitable for primary school students.

Sign 2

Likes	Areas for Improvement
More age-appropriate for high school students.	Use personal pronouns for inclusivity e.g., 'you' and 'our' rather than 'this.'
Preferred the positive message of having clean hands, rather than that dirty hands spread disease.	Improve visual engagement by using bolder colours, as per Sign 1's yellow.
The style matched that of the poster Sign 2.	Headline message needs to be strong, simple and clear e.g., 'Stop: keep our animals safe.' Could the whole fence design be a Stop sign.
Including the NSW government logo gave the sign more authority.	Simplify or condense into strong messages e.g. 'Please don't touch the animals,' 'Enter with
Suggested a similar sign would be useful for plants.	

Likes	Areas for Improvement
	permission', 'Help keep our animals safe (hand washing).'

Overall, the preferred execution was Sign 2 with the suggested improvements, specifically the colour palette of blue and green, not being as visually engaging as red and yellow, which are also more associated with danger or alert signage.

To ensure the effectiveness of the Internal School Farm Fence sign:

- Display where students or visitors sign in (i.e. central support unit) before they are allowed on the farm.
- Use solid plastic materials with holes and attachments that can easily hang on fences.

Signage: External Fence Feeding

With Sign 1 cartoon and Sign 2 infographic in style, the preferred execution was External Fence Feeding Sign 2, reflecting the preferences in the postal and signage collateral. The presentation of the images, tone and terminology of Sign 2 gave the sense of officialdom and authority, specifically the bold main message and a bright cross over the infographic feeding the animal.

It was noted, stating the consequences of doing the wrong thing is an important message to inform the general public, as there is still the common perception in the wider community that a school farm is similar to a petting zoo.

Additional areas of improvement were also suggested to alleviate the somewhat congested layout and simplify the message:

- Remove the 'please' from 'Do not feed the animals', given it is not a request and should be followed.
- Reorder messaging to:
 1. Heading: 'Do not feed the animals'
 2. 'You could be spreading diseases'
 3. 'Feeding food scraps is illegal' removing further explanation of why to keep succinct.

A suggestion to include the actual 'Act' (Animal Research Act) on the poster to make it more official and show a teachable concept to the students may, however, increase congestion on the poster.

Signage: External Entry Point

There is broad awareness of the official NSW Government (DPI and LLS) biosecurity signage for external entry points, where to source it and were currently using it in their school farms. It is seen as highly relevant and displayed on every gate, entrance, or front office.

Whilst the importance of the sign is understood, the concern is that outside contractors or trades people do not notice it and are not as mindful in exercising caution in their visits or interactions with the school farm. The sign acts as a reference to reinforce biosecurity behaviours for visitors.

Most schools display the school's number on the sign, and it was agreed one contact number on the sign is enough. Considerations were made to alternative numbers, as some thought the ag teacher's

number should be displayed, whilst others did not want private numbers divulged albeit one school's notice quoted the Principal's number. Alternatively, a note on the sign encourages people to refer any perceived biosecurity issues to the teacher was suggested.

Several suggestions for the sign were made:

- **Durability:** Comment was made on the impact of the weather on the sign, which fades its red colour and the permanent marker used to write the contact details. A number of alternative materials and manner of producing the sign were suggested, ranging from professionally printed metal signs to laser engraving of contact details (which had been experienced). No mention was made of printing and laminating even if the signage can be downloaded and printed.
- **Relevancy:** To avoid incorrect contact details being displayed on the sign periodic updates of the sign at least every two years should occur, or annually as part of the process of updating biosecurity documentation.
- **Implementation:** As soon as a school starts teaching agriculture, a 'starter pack' could be sent out that has all relevant resources, including where to place signage, as this was cited as a barrier by an ag teacher who has yet to put up the sign.

Glovebox Guide

Awareness of the EAD Glovebox Guide ranged from those not aware, aware, owned, and those who distributed copies obtained from the LLS to other teachers and students.

Only a few mentioned other guides mostly plant-related: cropping guides, plant nutrients, weeds, which helped easily match up plant/plant symptoms with potential issues.

Reception to the EAD Glovebox Guide was unanimously positively and viewed as a 'great learning tool.'

Likes	Areas for Improvement
Clear and simple, with the language 'not too over the top' and easy to follow.	More information about poultry required given most school farms have chickens, either included in the current guide or as a separate guide just for poultry.
Detailed enough to be useful, some recognition it cannot take the place of other more official material: 'It is a good snapshot.'	Create the opportunity for the LLS contact details to be included e.g., space to be written as could not be printed uniquely.
Industry-based, not just a simplified version or a school version.	Section 1: Responsibilities and Contacts and Section 2: EADS should be separate to Section 3: Transport Preparation as it is not relevant to all schools and more commercial farming focussed.
The list of threats and different species affected, and photos of what these would look like were appealing as a succinct summary of threats.	
The 'Fit to load' flow chart given it outlined the process clearly.	

It was agreed the Guide should be made widely available, to the Animal Welfare Liaison Officer, ag teacher, science department, Principals, wider school, general assistant and maintenance, delivery drivers and feed suppliers. Specifically:

- Hard copies in the ag classroom as a teaching and information resource.
- Included as part of biosecurity information in a 'biosecurity pack' that can be widely and easily accessed.
- Printed in large format and permanently displayed on a classroom wall.
- Hard copies available around the school: farm, staff room, front office, and sign in room.
- Digital copy of the Guide available through Animals in Schools website, or an app, such as the Vet Handbook from MLA, with a very detailed section on diseases, which makes identification and reference of EADs easier and immediate without needing to look for the physical copy.
- Hyperlinked to the checklist / flow chart for reporting suspected EADs or located near a printed copy of the checklist / flow chart. Having these two resources together in tandem would help with identifying symptoms, signs and behaviours.

While copies of the guide can be sourced from LLS, the expectation is the Guide would be available through the usual sources, especially the Animals in Schools Liaison Officer.

In-school field testing

School participation

Five agriculture teachers who took part in the communications testing volunteered to test the biosecurity awareness and animal disease reporting resources at their schools. Three schools were in the Greater Sydney area with the remaining two schools in regional NSW - the Central Tablelands and northern Hunter (fig 5). In-school field testing took place over a 6-month period, starting on October 7, 2023, at the start of Term 4 and continued to the end of Term 1 on April 12, 2024.

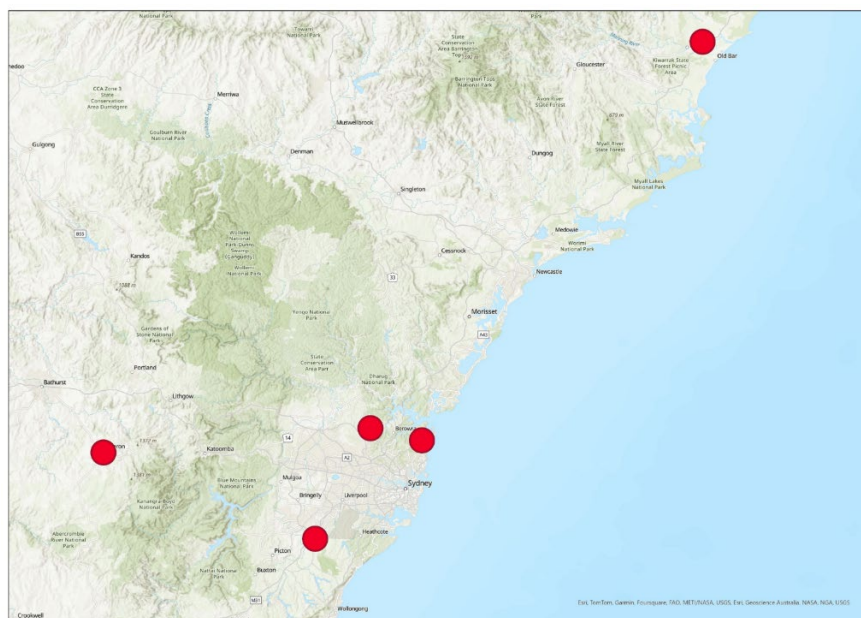
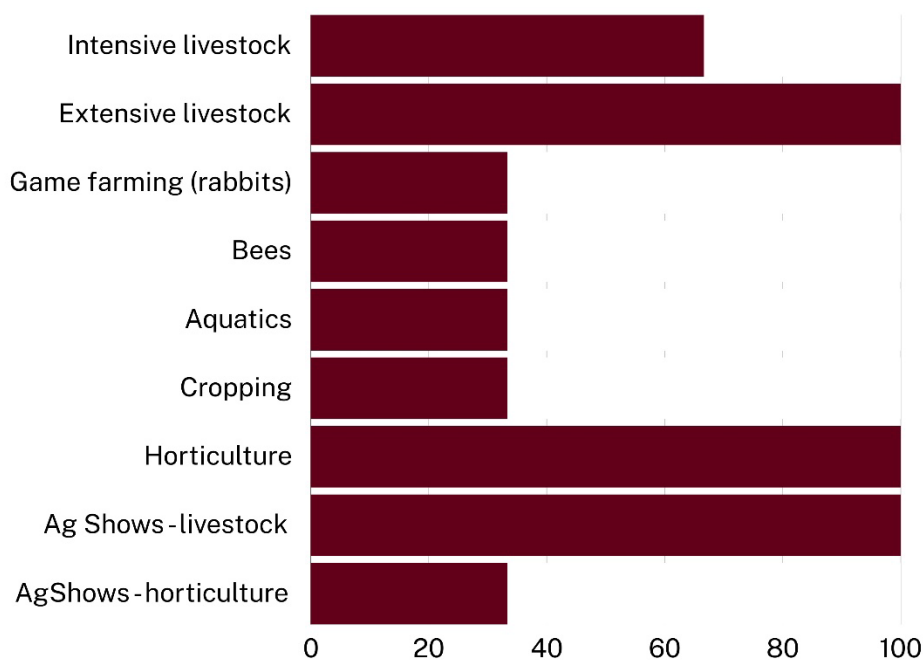
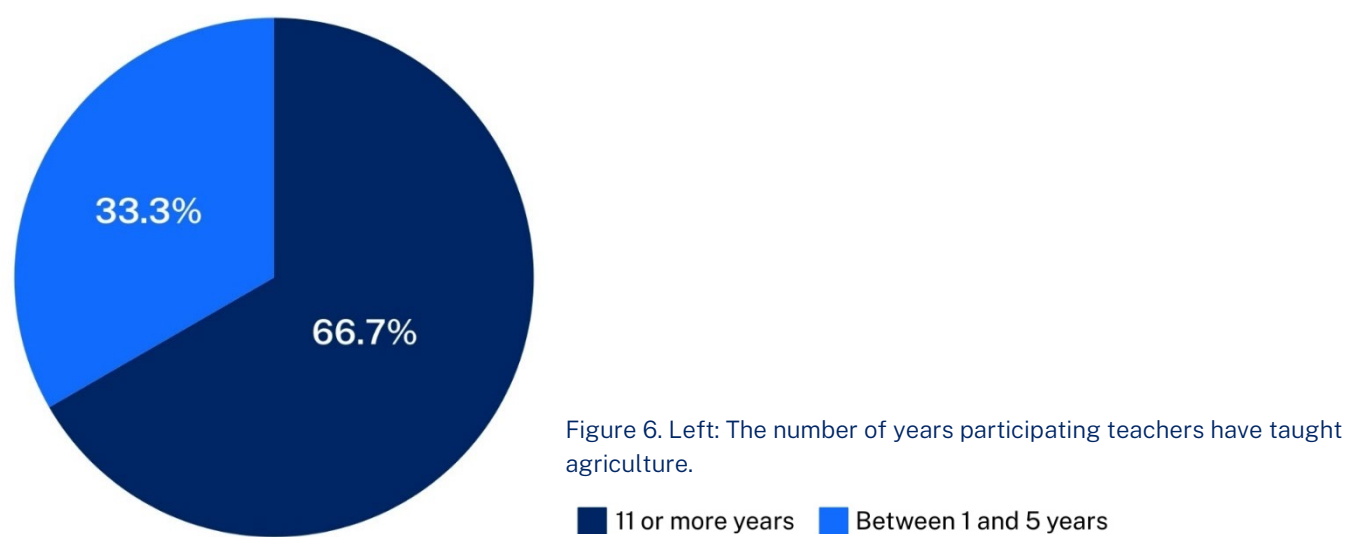


Figure 5. Location of the schools participating in the in-school resource intervention testing are denoted by red circles.

One of the Sydney teachers involved in the field trial left their school at the start of Term 1, 2024 and the school was no longer engaged in the trial. Of the remaining four teachers participating in the trial, three (n=75%) responded to the online evaluation survey.

From the online evaluation survey, participating schools had on average 70 agriculture students (range 50-80). Demographics of the participating ag teachers and school farm enterprises are shown in Figures 6 and 7.



All of the resources were provided electronically in .pfd and .jpg file formats via email, with the signs posted to participating schools. Signs were printed on ISO A3 corflute to be more durable in the outdoors. Signs had reinforced eyelets in each corner with cable ties provided for hanging.

Two thirds of participants felt the signs were appropriate to all high school stage groups¹ (stages 4 to 6; n=2) while a third reported the signs trialled were most appropriate for stages 5 and 6 (n=1).

All participants agreed the signs and poster were useful and recommended they be made available to all NSW high schools in their current form.

¹ In NSW high schools, stage 4 is years 7 and 8; stage 5 is years 9 and 10; and stage 6 is years 11 and 12.

When asked if there were any additional key messages relating to farm biosecurity in schools that they would like to see raised that haven't already been addressed, survey participants felt that:

“all signs were good and raised the biosecurity risk”

-School A

“No, [we should] keep using these, reviewing and improving as they roll out to more schools. There may be context-based refinements which are possibly needed to be made more influential, e.g., those with greater road frontages vs not, those with different cultural groups nearby vs not etc.

-School C

Initial engagement with participating schools indicated around half the schools reportedly involved their students in putting up the signs around the school to encourage student-led biosecurity awareness and engagement (fig 8).



Figure 8. Students hang the signs along the external and internal perimeters of their school farm.

Generally, there was positive engagement with agriculture teachers, students and the wider school community, the findings of the school field trial were reflective of the findings of the in-depth interviews and will require ongoing effort to facilitate biosecurity as a shared responsibility across the school system at the local level and above.

Reporting checklist and flow chart

A 5-page checklist was trialled that incorporated teacher feedback, including:

- Simplifying content and adding space to help break up the dense text
- Including space for comments and sign-off
- Including a notification of who will follow up on the incident
- A flow chart to show how the disease reporting and decision-making process.

The trialled checklist/form took into consideration the additional requirements and reporting lines of the school system, provided a framework for teachers to record their key animal health contacts, with a step-by-step process for what they may need to do and be asked for when reporting a suspect disease, while still having the ability to make notes of their conversations and actions (fig 9).

Reporting a suspect Emergency Animal Disease

SCHOOL FARM DETAILS

School Principal	Name	Phone
Head Ag Teacher	Name	Phone
Veterinarian #1	Name	Phone
Veterinarian #2	Name	Phone
LLS* District	Region name	Phone
LLS* District Vet	Name	Phone
PIC/s		
NLIS user ID		
PigPass registration no.		
IAR no. (alpacas)		
Pig tattoo / brand no.		
School Animal Welfare Liaison Officer	Name Phone	
Schools Animal Care and Ethics Committee (SACEC)	Sally Bannerman Animal Welfare Coordinator Tel: (02) 7814 2631 Email: sally.bannerman@det.nsw.edu.au	
Rural Agriculture Network Facilitator	Name Phone	

* LLS - Local Land Services and NSW DPI - NSW Department of Primary Industries

LOCAL LANDS SERVICES – 1300 795 299
EMERGENCY ANIMAL DISEASE HOTLINE – 1800 675 888

dpi.nsw.gov.au/biosecurity/animal Page 1 of 5

Step 1 – Recognise the signs of an Emergency Animal Disease

Any unexpected disease symptoms, unusual behaviour or unexplained deaths could be signs of an emergency animal disease (EAD).

The following is a list examples of things that are suspicious for an EAD:

- the appearance of ulcers or blisters on the mouth or feet of livestock
- the appearance of skin nodules on cattle
- an unexplained and significant increase in a mortality (death) rate or morbidity (illness) rate in animals,
- an unexplained and significant fall in production levels
- the appearance of other unexplained and significant clinical signs including, but not limited to, unexplained neurological signs or conditions.

Refer to the **Glovebox Guide: Biosecurity emergency animal diseases and preparing livestock for transport**
https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0011/1457696/Glovebox-guide-biosecurity-emergency-animal-diseases-and-preparing-livestock-for-transport.pdf

You have a duty, or legal obligation, to notify authorities immediately if you know or suspect that an animal has an Emergency Animal Disease.

Comments

Name and role
Date

Step 2 – Collect available information to inform the authorities

- ☐ Your name and location and contact details
- ☐ School farm location
- ☐ Species of animals affected
- ☐ The clinical signs/symptoms present
- ☐ Total number of animals on farm and how many are affected
 - i. Are any of these animals in adjoining pens?
- ☐ Brief history including husbandry actions, onset of signs and recent movement of animals on and off the farm
- ☐ Photos/videos of the animals and clinical signs if possible and without increasing contact with animals.

Comments

Name and role
Date

dpi.nsw.gov.au/biosecurity/animal Page 2 of 5

Figure 9. The EAD reporting checklist includes the school farms details and a step-by-step decision-making and recording tool for teachers to capture their actions.

The school farm details section can be pre-populated and maintained to minimise ensure accurate and timely information is available at the time of reporting a suspect EAD. Moreover, the same form and process can be followed for reporting any notifiable disease.

As identified in the communications testing phase, an accompanying disease reporting flow chart was developed to further support teachers and ag staff with their reporting decision-making process, and to help explain the reporting requirement to their school executive (fig 10).

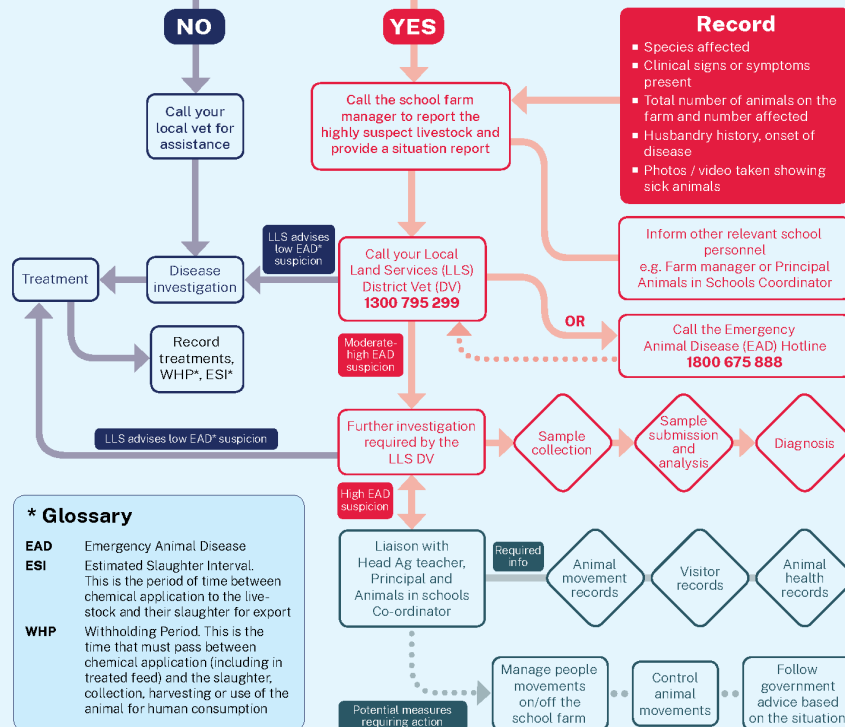
PUB24/832

55

Reporting unusual signs of disease or death in school farm animals

- Ulcers or blisters present.
- Skin nodules (especially cattle).
- Unexplained and significant increased in mortality (death) rate.
- Unexplained and significant increase in morbidity (illness) rate.
- Unexplained and significant fall in production.
- Appearance of other unusual signs of disease, including neurological signs or conditions (tremors, seizures, recumbency, paddling).

Suspect an emergency animal disease in one or more school farm animals



dpi.nsw.gov.au/biosecurity/animal

Figure 10. Flow chart to support animal health and disease reporting decision-making by agriculture teachers and support staff and provide transparency of reporting obligations to the school.

Participating ag teachers found the checklist (form) useful in explaining their reporting obligations and improving their understanding of what to report (fig 11). In addition, the flow chart supported the checklist effectively in explaining the disease reporting process and managing reporting expectations (fig 12). While no further changes were recommended following the trial period, participants noted that further support and engagement may be required to effectively communicate with senior school executive about disease reporting obligations and reporting pathways:

“It [the flow chart] was easy to understand for ag teachers, not so much for executive”

-School A

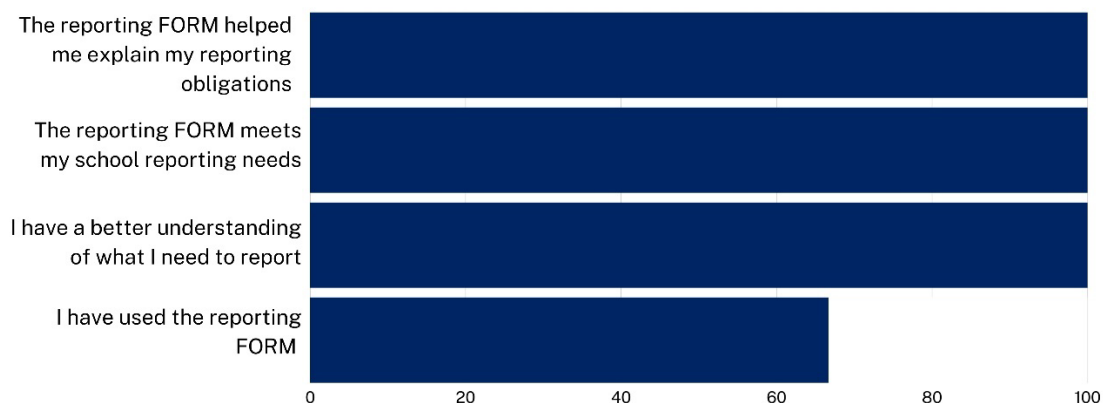


Figure 11. Usefulness of the checklist (form) in informing disease reporting and facilitating reporting record keeping.

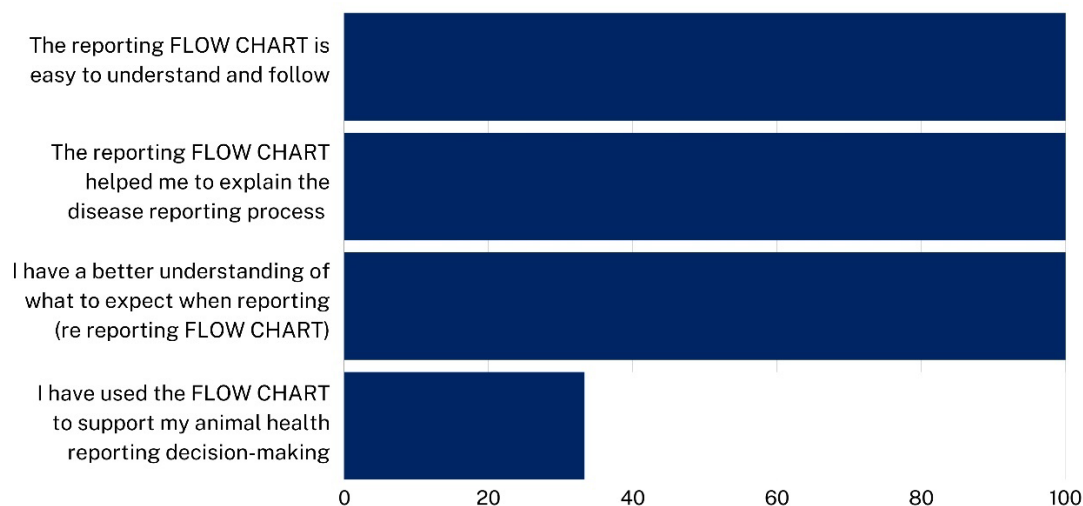


Figure 12. Figure 9. Usefulness of the disease reporting flow chart in informing disease reporting processes and facilitating reporting decision-making.

Both the checklist (form) and the flow chart, while reviewed by participating teachers, had not been used by all during the trial period, which, given the low number of animal disease reports from schools in general, was expected. One participant noted that improved accessibility would improve widespread uptake and use of the checklist (form) and flow chart:

“Quickly accessible or visible in an app/website”

-School C

Signage

Visiting school farm sign

Teacher feedback from the communications testing phase was incorporated into the visiting school farm sign (fig 13). The more ‘formal’ look and feel was trialled incorporating the “come clean, go clean” messaging and introducing red to be less monochromatic, more attention grabbing and in line with NSW Government branding.



Figure 13. Visiting school farm sign displayed at the entrance to and within the school farm as a visual reminder of biosecurity best practice and to support timely disease reporting.

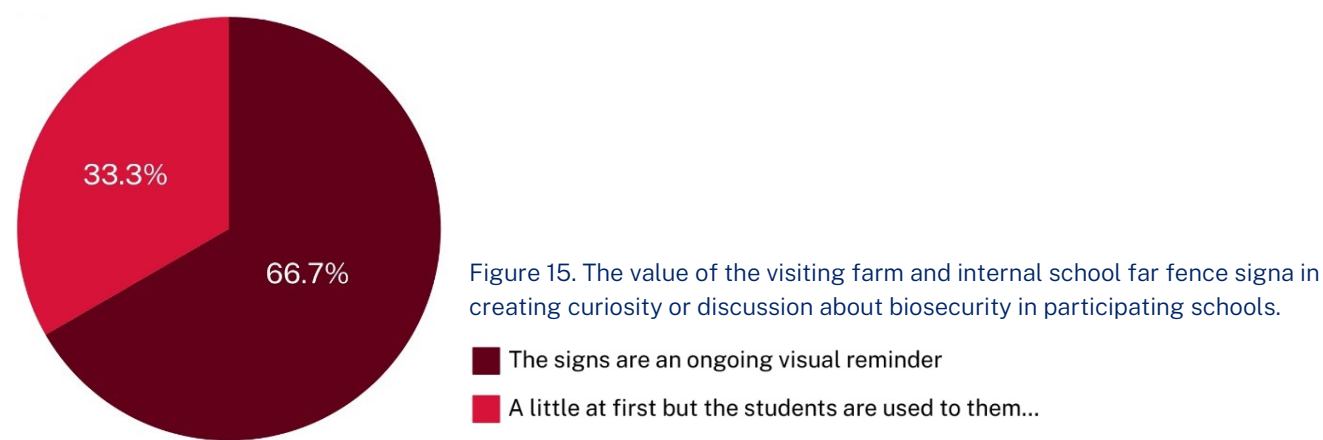
Internal school farm fence

Teacher feedback from the communications testing phase was incorporated into the trialled internal school farm fence sign (fig 14). Following a similar look and feel to the visiting school farm sign, this resource was placed around school common areas to raise whole of school awareness of biosecurity best practice with a focus on ‘keeping the school animals safe’.



Figure 14. Internal school farm fence sign displayed in common areas near the school farm and the school entry points as a visual reminder of biosecurity best practice to keep the school’s animals safe.

Generally, the signs were well received with no immediate changes recommended. Participants mostly felt the signs were a useful ongoing visual reminder of biosecurity best practices, however, a third of participating schools felt the signs may lose value in time as the students become accustomed to seeing them daily and the message may become invisible without other reminders and visual cues (fig 15).



Participants were asked about the role of the signs in improving awareness and understanding of biosecurity in the context of their school farm. Here, awareness referred to having heard or of being familiar with the term biosecurity in the context of the school farm, while understanding referred to the theoretical and applied knowledge of the importance of biosecurity as it applied to the school farm. Generally, at least two-thirds of the schools felt all stakeholder groups within the school system at the local level had greater awareness of biosecurity. The same level of understanding was only reported for those students already engaged in agriculture and the wider school community (such as parents and neighbouring families).

Improvements in biosecurity understanding was more difficult to achieve and may require additional and alternative interventions to engage more effectively with the school executive, other teachers and students not already engaged in agriculture (fig 16).

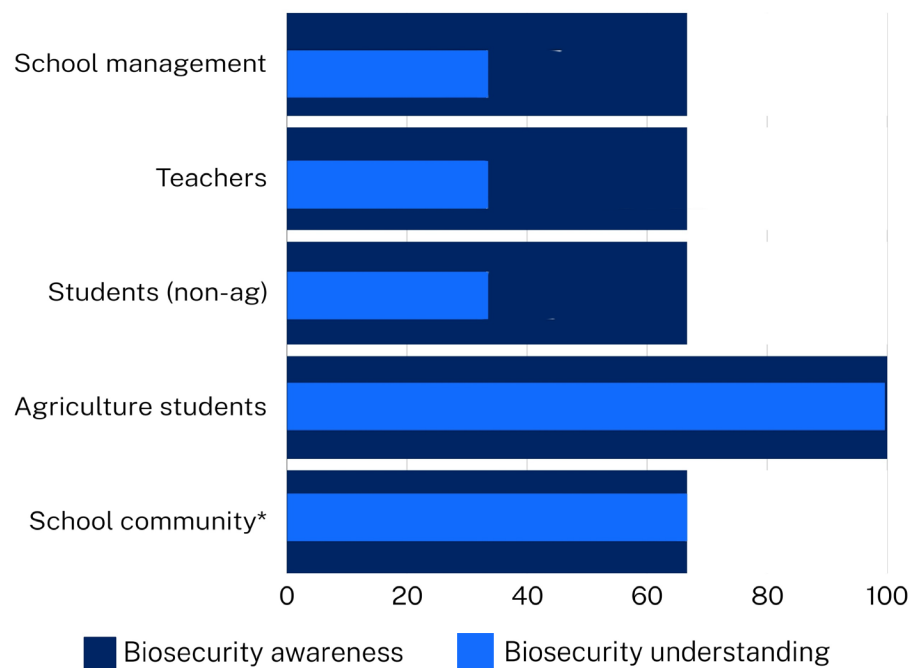


Figure 16. Reported improvements in biosecurity awareness and understanding within the local school community.

Participants reflected on observed biosecurity behaviour change as a result of the in-school field trial. Here, behaviour changes was defined as an improvement in biosecurity action as it applied to the school farm. Overall, all participants reported having stricter visitor controls and greater awareness of farm biosecurity practices among agriculture students who are now championing farm biosecurity in their school (fig 17).

Additional behaviours around greater school-wide support, awareness and compliance remain challenging and may require more time and either greater or different interventions targeting non-agriculture teaching and executive staff.

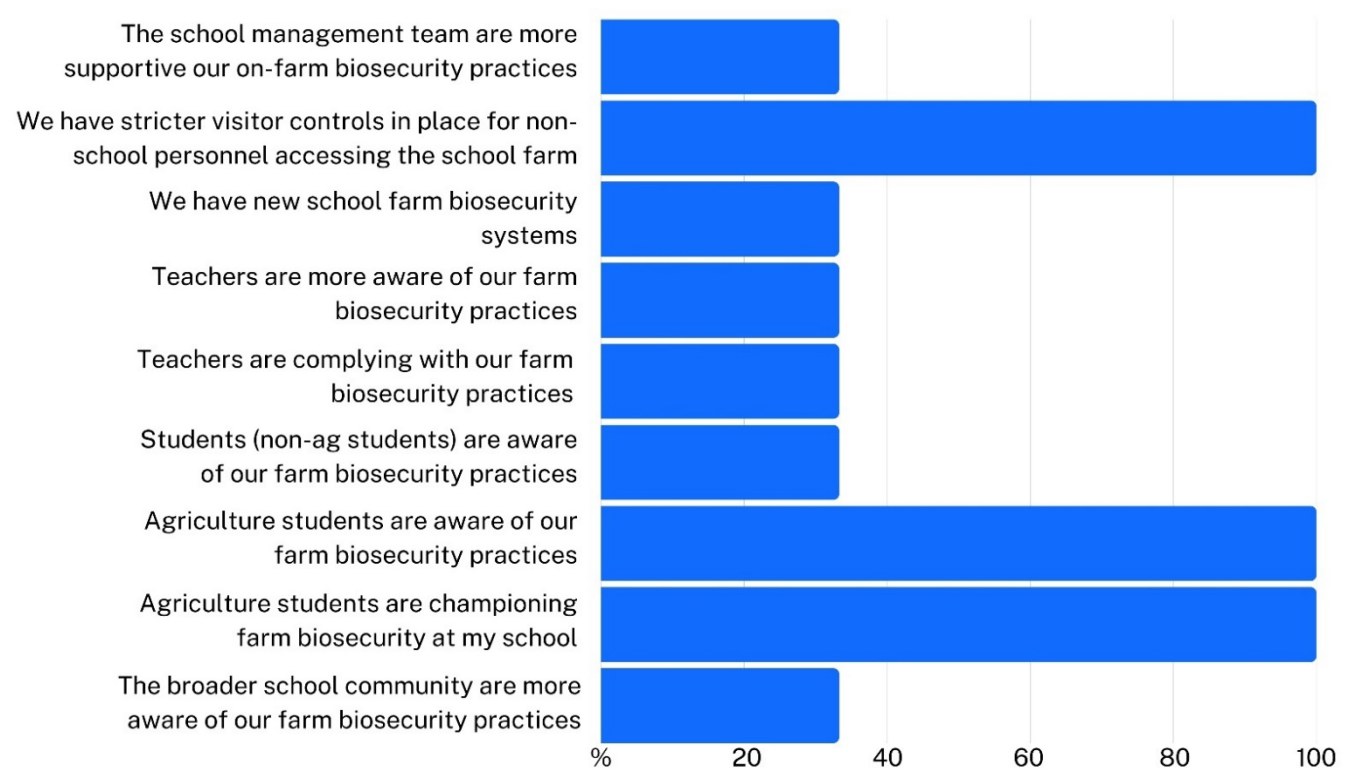


Figure 17. Observed changes in biosecurity behaviours at school participating in the field trial.

External fence feeding sign

‘Do not feed the animals’ sign (fig 18) were trialled to support schools in preventing the feeding of livestock by staff, students, and where the school farm was located on a boundary fence, by the local community. When asked about the need for changes to make this sign more effective as a visual aid to prevent passersby from feeding and/or interacting with school farm animals, all participants agreed:

“It was a good sign that had many valid points”
-School A

When asked for evidence that the "Do not feed the animals" sign had any impact on the local school community in reducing the feeding of or interaction with school livestock by passers, each of the evaluation survey participants reported differing experiences:

“The [“Do not feed the animals”] signs were ripped down by the community, along with the other signs”
-School A

Yes, it had an impact - feeding of animals by passersby has stopped or been reduced

-School B

“No, it made no detectable difference - it was never a problem at our school”

-School C



Figure 18. The external fence sign to promote biosecure interactions with school farm animals

Glovebox Guide

In-school field trial participants each received a box (74 qty) of Biosecurity, emergency animal diseases and preparing livestock for transport glovebox guides (fig 19) to use on the school farm as a guide to support animal health planning, surveillance and reporting activities, as well as a teaching aid to support student learning.

All survey participants reported the guides were a useful student resource (n=3, 100%) with two-thirds indicating they had used the guides in the lessons with students (n=2, 66.7%).

“The students really liked them [the guides] and found them very useful”

-School A

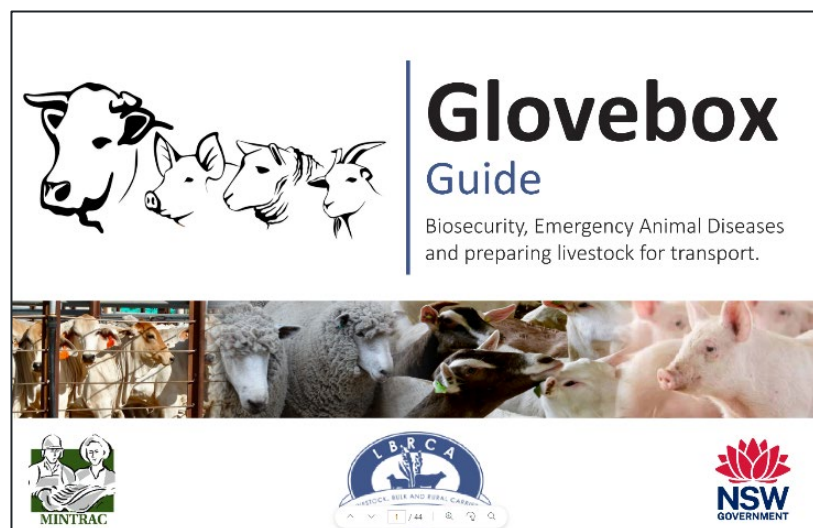


Figure 19. Industry glove box guides were provided to schools enrolled in the in-school field trial to support animal health activities on the school farm and support biosecurity teaching outcomes.

Additional school farm biosecurity resources

Biosecurity risk pathways poster

An additional resource that had been developed for the pork industry to raise awareness about the various risk pathways for disease entering and spreading in a piggery was modified considering the school farm environment and included in with the field trial resources as an ISO A3 poster (fig 20). This resource was not part of the original co-design process or communications testing but was thought by the NSW DPI project team to be useful as a visual reminder of all the different ways pests and diseases can be introduced and spread onto and within a farming system.

All schools received 2 copies of this poster to support their in-school risk identification and biosecurity planning activities.

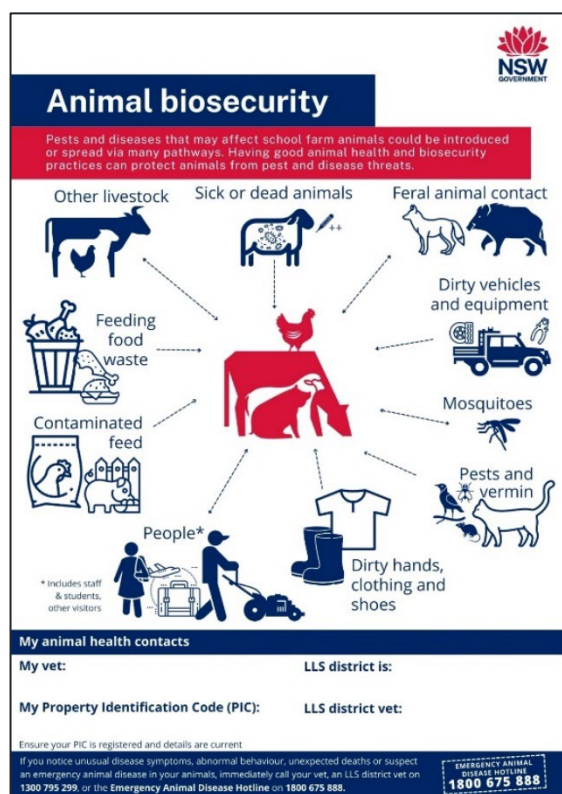


Figure 20. Adapted disease risk pathways poster sent to schools as part of the in-school field trial.

Biosecurity in schools e-learning module

Based on the research findings, and the identified gap in supportive teaching resources that show relatable examples of biosecurity in practice in a school farm setting, the NSW DPI project team developed an e-learning module to support student learning (fig 21). The online module introduces biosecurity concepts for both plants and animals and compliments the recently revised NSW agriculture curriculum that now encompasses biosecurity key learning outcomes.

- The module is a whole school farm package that could be used as an:
 - Induction program students are required to pass in order to enter the school farm or
 - Interactive classroom learning tool to support curriculum key learning areas.

The module was developed for high school aged students with teacher-led learning encouraged for primary-aged students who may be engaging with the program.



Figure 21. Images of the Biosecurity in schools e-learning module

Resource accessibility

All the resources developed as part of the *Biosecurity awareness and emergency animal disease preparedness in NSW high schools* project are publicly available on the NSW Department of Primary industries and Regional Development Education and Training – School Program website: <https://www.dpi.nsw.gov.au/education-and-training/school-resources>.

A broad scale awareness campaign will be implemented to engage with schools and agriculture teachers across NSW on the availability of these resources.

APPENDICES

Deep Dive Findings

Summary of Assessment

Similarities / Differences Between the Documents		Document's Accessibility	
Number/Name/Format	Content Understanding Relevance	Pathways to finding the documents	General comprehension and clarity of message
NSW Department of Primary Industries in Schools Program Secondary School Resources https://www.nswdpi-schools-program.com/secondary-school-menu NSW Department of Primary Industries 105 Prince St. Orange NSW 2800 schools.program@dpi.nsw.gov.au			

No overall Biosecurity in Animals document with definitions, behaviours and implementation of procedures for teachers in schools. <u>Pork production worksheet</u> – Pigs and biosecurity section (P37) and biosecurity in general mentioned in various sections in the document. <u>HSC elective Agri-food, fibre & fuel tech study guide</u> contains at section (P25) ‘Examine the role of biosecurity’. Both documents’ naming conventions seemed a randomized string of letters and numbers. The name of the document within the file mentions they are supporting documents, rather than ‘worksheet’ or ‘study guide’.	Pork production worksheet lists 9 ways pig producers implement high levels of biosecurity in their farms, which describe biosecurity behaviours. Good understanding of biosecurity, specific to pigs. Worksheet questions at the end of the section helps to retain information. Definitions provided for exotic diseases. ‘Helpful website’ Links in the document to NSW DPI, Primefact, Australian Pork Federation & other state and Fed DPI for disease descriptions. Highly relevant to animal biosecurity, specific to pigs. The HSC elective Agri- food study guide listed key drivers of good biosecurity, which clearly	No search bar function. Links to documents available to navigate this section of the website.	Both documents were easy to comprehend and had clarity of messaging, with overviews/ introductions of biosecurity in general and helpful links to external websites of pig diseases.
---	--	---	---

<u>Farming for the 21st Century</u> has an 'Animal Welfare' section (P7) with no mention of Biosecurity but does have a link to NSW Education Animals in Schools (see below).	details 6 biosecurity behaviours. Links are provided to NSW DPI for disease descriptions including Foot and Mouth. Also video clips to stakeholders talking about biosecurity. Good understanding of biosecurity. Worksheet questions at the end of the section helps to retain information. Highly relevant to farm / animal biosecurity.		
Similarities / Differences Between the Documents		Document's Accessibility	
Number/Name/Format	Content Understanding Relevance	Pathways to finding the documents	General comprehension and clarity of message

NSW Education
 Animals in Schools
<https://education.nsw.gov.au/teaching-and-learning/animals-in-schools>

Sally Bannerman
 Animal Welfare Coordinator Tel: (02) 7814 2631
 Email: sally.bannerman@det.nsw.edu.au

Biosecurity Home Page: Included a 'Last updated date at the bottom of the site/page Biosecurity plan documents: <u>Template A Template B Parent letter</u> Website path:	The Biosecurity Home page includes an overview of What Schools Must Do, Biosecurity plan templates; one for non- Agricultural schools another for schools that do teach Agriculture, and a letter template that can be shared with parents. Content and templates support and demonstrate animal biosecurity behaviours.	Search bar. Under the Animal in schools landing page > Issues link > Biosecurity.	Great comprehension of what is required and contains clear messaging.
---	---	--	---

https://education.nsw.gov.au/teaching-and-learning/animals-in-schools/animals-in-schools-issues/biosecurity	Comprehensive understanding of animal biosecurity. High relevance to biosecurity.		
Similarities / Differences Between the Documents		Document's Accessibility	
Primezone (PIEFA) https://www.primezone.edu.au/ Phone: 02 6198 3230 Email: info@piefa.edu.au Address: Level 1 The Realm, 18 National Circuit, Barton ACT 2600			
Homepage: No overall Biosecurity in Animals or in drop down. Resources by way of lesson plans below found through search function https://www.primezone.edu.au/resource/biosecurity-surveillance-in-schools-activity/ https://www.primezone.edu.au/resource/biosecurity-	Provided an overview and a link to find out more info on the course, and some description of what the course can offer in terms of skills to help protect agriculture industries from ASF. Good understanding. High relevance to biosecurity, but specific to ASF.	Search bar. Under Years F-12 Lesson Plans	Good comprehension of what is required, and contains clear messaging, but is specifically for informing of the eLearning course.

<u>protecting-our-plants- and- animals/</u> African Swine Flu (ASF) prevention and early detection eLearning course. Document: https://daf.engagementhub.com.au/app/webroot/js/admin_js/kcfinder/upload/daf/files/ASF%20prevention%20and%20early%2			
---	--	--	--

<u>0detection%20eLearning %20course.pdf</u> Website path: https://www.primezone.edu.au/resource/asf- prevention- and-early- detection/			
---	--	--	--

Royal Agricultural Society of NSW Education https://www.rasnsw.com.au/education/ E: education@rasnsw.com.au P: 02 9704 1494 F: 02 9704 1197			
No document found		Search bar did not display anything directly related to animal biosecurity.	

Five key questions were put forward as focus areas to cover in the Deep Dive:

1. What guidance documents are available to teachers to support animal biosecurity understanding and implementation in the school environment?

Three websites have documents available to teachers to support animal biosecurity understanding and implementation in the school environment:

- NSW Education Animals in Schools Biosecurity Template A, B and Letter to parents
- Primezone (PIEFA) ASF prevention and early detection eLearning course
- NSW DPI website did not necessarily have dedicated and separate resources for animal biosecurity and its implementation in schools, but had 2 documents containing sections that discussed animal biosecurity:
 - Pork production worksheet – ‘Pigs and biosecurity’ section and biosecurity in general mentioned in various sections in the document
 - HSC elective Agri-food, fibre & fuel tech study guide contains a section ‘Examine the role of biosecurity’

The rest of the NSW DPI website had some links to other documents that point to biosecurity for invasive pests.

Independent to the nature of the resources on the site (learning frameworks, resources for teaching) animal biosecurity is not represented as a whole except in the NSAAW website, compared to crop and pest biosecurity or individual animal type resources.

- To bring EAD front of mind in every resource interaction, access to resource should be available via the home page.

2. How consistent are the guidance documents across the relevant sites?

The NSW Education templates were fully comprehensive documents, compared to NSW DPI’s 2 documents. NSW Education’s templates described all the steps deemed essential to establish good biosecurity practices in schools, while NSW DPI’s documents are more informative in nature and describes how biosecurity practices are implemented.

PIEFA’s free elearning course for ASF prevention and early detection’s focus was on promoting the course, in which the detail would be provided for teachers who undertake it. NSW Education’s templates and NSW DPI’s HSC document also talked about biosecurity in broad animal terms, while NSW DPI and PIEFA’s documents limited biosecurity to pigs.

- Naming convention for any templates should be closer to the contents or title of the document (ie Template A ➔ Non-Agriculture School Biosecurity Template).

3. How accessible are the guidance documents?

NSW Education and Primezone had search functions that pointed directly to the websites/documents. For those familiar with the structure of the site, the documents fell under (mostly) relevant headings.

NSW DPI website did not have search functions; in order to locate any topics on biosecurity, opening links to documents or student guides that could potentially mention animal biosecurity, and doing a Find function (Ctrl+F) on the .pdf files to find any mention of biosecurity was necessary.

RAS did not have guidance documents at all, nor sections of their website dedicated to animal biosecurity.

- Overall, the websites have some logical paths to the resources (not necessarily intuitive), but the landing pages will not necessarily have animal biosecurity on the front, indicating that the importance is secondary to the main message of promoting agriculture in schools in general.
- 4. What are the key biosecurity behaviours (activities) NSW high schools are being asked to implement? (This will help to inform interview guide about biosecurity implementation, attitudes, drivers, barriers, which behaviours are worth focussing on for the co-design etc)

The NSW Education Biosecurity page gives an overview of what Biosecurity is and steps to put this in place. By detailing the steps, the site indicates the following biosecurity behaviours:

- Having a plan and sharing it with staff
- Knowing vet and their contact details
- Ensuring sheep, cattle, and goats are NLIS tagged and transfers up to date on the NLIS database
- Never feed food scraps to pigs or ruminant animals and control the community's ability to feed your animals
- Vigilance and knowing the signs of disease
- Making important information readily available for Principal, Head Teacher, Farm Assistant and any other relevant staff

While the documents provide a template for a comprehensive plan, administering the form could be a barrier to implementation. It would be crucial to take the team members through it collaboratively to foster a sense of buy-in, cooperation and long-term compliance.

NSW DPI's HSC document detailed the below as key drivers of good biosecurity, and could be

- counted as themed (and easy to recall) behaviours:
- Protection
- Prevention
- Prediction
- Preparation

- Response
- Recovery

NSW DPI's Pork production document have the below examples of ways pig owners implement high levels of biosecurity:

- No swill feeding
- Prevent contact with neighbouring properties
- Separation from other animals
- Introduction of new stock and quarantining
- Controlled access
- Disease identification and reporting
- Pig identification and movement documentation
- National vendor declaration

The PIEFA eLearning course points to biosecurity behaviours surrounding being informed, prevention, recognition and reporting of signs of ASF disease.

5. Do teachers have the ability to seek further specific advice from experts if required.

The websites each have their generic Contact Us for teachers to seek further specific advice. Finding the experts will take a while, as the contact types seem to lead to generic landlines/inboxes that will need to be sorted, transferred, and redirected to the correct department or contact. Only NSW Education Agriculture in Schools has a direct contact with a name, role/position, landline and email address (Sally Bannerman).

NSW DPI In Schools Program

Pathways to finding the document

The toughest website to search anything on, since a Search bar is unavailable. Secondary School Resources relies on a colour coding system, with the legend on the bottom of the page, and links to documents not quite as evident until you hover the mouse over the abbreviated colour codes.

The page is a list of links, with not enough by way of overview, explanation, or how to navigate the table. There was colour coding of the various stages, and each had a linked document (pdf).

Website Content

The list in the webpage does not have biosecurity pertaining to animals/livestock, ONLY biosecurity pertaining to citrus and grains. It was fourth down the list (a 2016 document: Year 7 Citrus Biosecurity, 2016 Teaching Resources, Secondary Schools)
<https://www.nswdpi-schools-program.com/biosecurity- in-citrus-and-grains>

The closest were topics on Dairy production in NSW and Pork production, under Industry insights – poster and worksheet series:

- <https://www.nswdpi-schools-program.com/industry-insights-dairy-production>
Dairy production worksheet, not in syllabus, was only mentioned as a career (page 37): https://www.nswdpi-schools-program.com/_files/ugd/af7c66_9f1d0acfb38491685f40ff78a8f4ee7.pdf
- <https://www.nswdpi-schools-program.com/industry-insights-pork-production>
Pork production worksheet – ‘Pigs and biosecurity’ section (pages 37-41) and biosecurity in general mentioned in various sections in the document:

https://www.nswdpi-schools-program.com/_files/ugd/af7c66_922458eab20341589fb3fb595a529c90.pdf Both posters did not contain anything directly related to biosecurity topics.

To check if biosecurity was even mentioned within topics where it could potentially be discussed, we found the following:

- HSC elective Agri-food, fibre & fuel tech study guide: https://www.nswdpi-schools-program.com/_files/ugd/af7c66_f4d478380e304d7596f21f428c275964.pdf?index=true Contains a section ‘Examine the role of biosecurity’ (pages 25-28)
- HSC elective – Farming for the 21st century study guide: https://www.nswdpi-schools-program.com/_files/ugd/af7c66_a4d401a99ad84dea8b04a505ed046bb8.pdf?index=true
 - Mentioned biosecurity under ‘Electronic identification systems’ (page 14).
 - Has an ‘Animal Welfare’ section (P7) with no mention of Biosecurity but does have a link to NSW Education Animals in Schools.
- Total Virtual Farm redirected to the Total website: <https://www.tocal.nsw.edu.au/farm-and-facilities/tocal-farms/virtual-farm>
and under Total Beef Production: <https://storymaps.arcgis.com/stories/cbd4e31c79df45e7ba1199b45d5ea808>
Biosecurity was mentioned as a major focus of NSW DPI’s Biosecurity unit as a response to a question about foreign beef trade policies directly affecting Total beef production.
- To check if other areas of the site had biosecurity, we clicked out of Secondary School Resources to the NSW DPI Home Page and under Primary Resources there was Biosecurity | Years 5-10: <https://nswdpi-schools-program.com/biosecurity>
It features 4 videos and accompanying .pdf documents examining NSW DPI’s role in ensuring safe and productive primary industries. Of the four, only one document briefly mentioned animal biosecurity. The site’s focus seemed to be on invasive pests:

https://www.nswdpi-schools-program.com/_files/ugd/af7c66_4ad3a89a4fa247f9aa67eb9cf2e3e8a3.pdf?index=true

Biosecurity monitoring and surveillance with the NSW DPI Teacher's Guide – only briefly mentioned animal biosecurity and was more about invasive pests.

Other observations:

- Some hyperlinks to the documents had issues (ie Tocal Virtual Farm); it needed to be right-clicked copied and pasted onto another browser for it to load. Some links also didn't work on Chrome, but worked on MS Edge.
- Links on the Table of contents on the document was not consistent (ie HSC elective Agri-food section on Examine the role of biosecurity was linked to a different section of the document)
- The name format of most of the .pdf files was not descriptive of the document contents (ie used random or default string of letters and numbers). Study guides were named differently within the document (Supporting Document).

Documents containing sections on animal biosecurity:

Pork production worksheet:

https://www.nswdpi-schools-program.com/_files/ugd/af7c66_922458eab20341589fb3fb595a529c90.pdf

HSC elective Agri-food, fibre & fuel tech study guide:

https://www.nswdpi-schools-program.com/_files/ugd/af7c66_f4d478380e304d7596f21f428c275964.pdf?index=true

Document Content

NSW DPI's Pork production document have the below examples of ways pig owners implement high levels of biosecurity:

- No swill feeding
- Prevent contact with neighbouring properties
- Separation from other animals
- Introduction of new stock and quarantining
- Controlled access
- Disease identification and reporting
- Pig identification and movement documentation
- National vendor declaration

NSW DPI's HSC document detailed the below as key drivers of good biosecurity, and could be counted as themed (and easy to recall) behaviours:

- Protection

- Prevention
- Prediction
- Preparation
- Response
- Recovery

Both documents also provided overviews, links to resources / definitions, videos, and worksheet questions.

Understanding

The documents demonstrate a clear understanding of animal biosecurity and its implementation. Worksheet questions at the end of the section helps to retain information. Links to definitions were provided for exotic diseases.

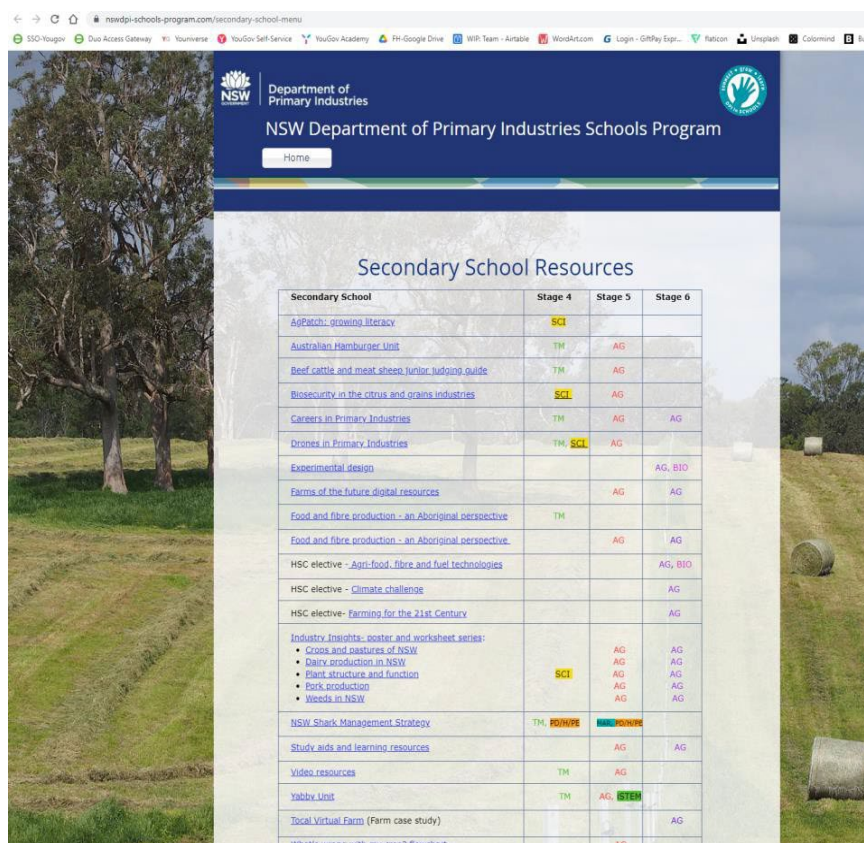
Relevance

Both documents are highly relevant to animal / farm biosecurity. General comprehension and clarity of message.

Both documents were easy to comprehend and had clarity of messaging, with overviews/introductions of biosecurity in general

Contact details

The Contact Us was on the bottom of the website's home page and only included NSW DPI address and email address (seemed generic and not specific to Biosecurity)



The screenshot shows the NSW Department of Primary Industries Schools Program website. The page features a header with the NSW logo and the text 'Department of Primary Industries' and 'NSW Department of Primary Industries Schools Program'. Below the header is a section titled 'Secondary School Resources' which contains a table listing various resources and their availability for different school stages.

Secondary School	Stage 4	Stage 5	Stage 6
AgPorch: growing literacy	SCL		
Australian Hamburger Unit	TM	AG	
Beef cattle and meat sheep junior judging guide	TM	AG	
Biosecurity in the citrus and grains industries	SCL	AG	
Careers in Primary Industries	TM	AG	AG
Drones in Primary Industries	TM, SCL	AG	
Experimental design			AG, BIO
Farms of the future digital resources		AG	AG
Food and fibre production - an Aboriginal perspective	TM		
Food and fibre production - an Aboriginal perspective		AG	AG
HSC elective - Agri-food, fibre and fuel technologies			AG, BIO
HSC elective - Climate challenge			AG
HSC elective - Farming for the 21st Century			AG
Industry Insights - poster and worksheet series:			
• Cross and features of NSW		AG	AG
• Dairy production in NSW		AG	AG
• Plant structure and function		AG	AG
• Pork production		AG	AG
• Weeds in NSW		AG	AG
NSW Shark Management Strategy	TM, POL/OPS	POL/OPS	
Study aids and learning resources		AG	AG
Video resources	TM	AG	
Yabby Unit	TM	AG, STE	
Total Virtual Farm (Farm case study)			AG
What's wrong with my crop? flowchart		AG	

NSW Education: Animals in Schools Biosecurity

Pathways to finding the document

The website was clear, easy to navigate, with a search bar that directly led to the Biosecurity page:

Website path:

<https://education.nsw.gov.au/teaching-and-learning/animals-in-schools/animals-in-schools-issues/biosecurity>

The Biosecurity page gives an overview of what Biosecurity is and steps to put this in place. By detailing the steps, the site promotes biosecurity behaviours:

- Having a plan and sharing it with staff
- Knowing vet and their contact details
- Ensuring sheep, cattle, and goats are NLIS tagged and transfers up to date on the NLIS database
- Never feed food scraps to pigs or ruminant animals and control the community's ability to feed your animals
- Vigilance and knowing the signs of disease
- Making important information readily available for Principal, Head Teacher, Farm Assistant and any other relevant staff

Content

The site features Biosecurity plan templates:

- Template A

Title: Biosecurity plan – schools not teaching agriculture

An abbreviated version of Template B below (ie excludes Vehicles and equipment and less items that do not apply for non-Agriculture schools)

- Template B

Title: Biosecurity plan – schools teaching agriculture

A very comprehensive Biosecurity plan: this document promotes biosecurity behaviours:

- Evidence of understanding the document by the staff members it was distributed to
- Being aware and informed of potential risks
- Actions to reduce risk
- Covering Essential areas on:
 - Farm inputs
 - Farm outputs
 - People
 - Vehicles and equipment

- Production practices
 - Train plan and record
- Comprehensive list of links to reference documents and additional resources
- Assignment of staff to take responsibility for actions
- Parent letter

Title: School biosecurity plan

A letter to parents of children attending the school about their biosecurity plan, which echoes 'Come clean' initiative included in Template B under People. This document points to simplified behaviours of biosecurity that applies to parents and the general community.

- Come clean
- Notify
- Observe

The Biosecurity page also includes a note that these documents have been developed in consultation with NSW DPI, agricultural teachers, with links to resources:

- Farm biosecurity website
- LPA On-Farm Biosecurity Plan template
- Department of Primary Industries
- Animal pests and diseases

It also includes a 'Date last updated' at the bottom – giving confidence of the timely relevance of the documents.

Understanding

The site and documents demonstrate a clear understanding of animal biosecurity and its implementation in a school environment, with links to other reference documents, resources. It provides examples of concepts, and definition of industry terms (ie PIC).

Relevance

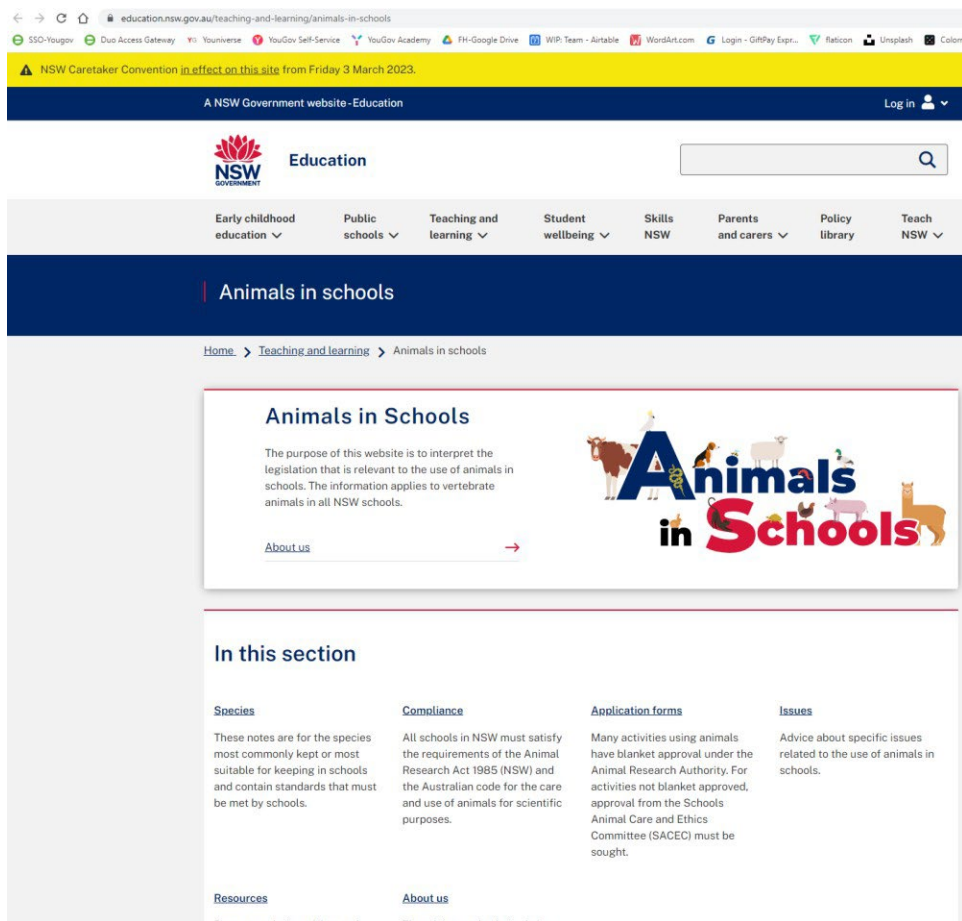
High relevance of the content to animal biosecurity. General comprehension and clarity of message

The site and documents demonstrate an elevated comprehension and clear messaging of animal biosecurity and expected behaviours.

The site also provides clear steps on what schools must do ('What schools must do' section) and 'What to do if you are concerned about the health of your stock'.

Contact details

The Contact Us was on the bottom 2/3s of the website. It included name, title, contact landline, and email address of the Animal Welfare Coordinator (Sally Bannerman).



Primezone

Pathways to finding the document

Visually stimulating website, but when it came to searching for something related to animal biosecurity (via the search bar), the closest concrete one led to an eLearning course, and was specific only to ASF (the second one 'Surveillance in School Activity' catered to Primary and was mostly about pests rather than animal biosecurity):

Link to ASF Prevention and early detection eLearning course.pdf:

[https://daf.engagementhub.com.au/app/webroot/js/admin_js/kcfinder/upload/daf/files/ASF%20prevent ion%20and%20early%20detection%20eLearning%20course.pdf](https://daf.engagementhub.com.au/app/webroot/js/admin_js/kcfinder/upload/daf/files/ASF%20prevent%20ion%20and%20early%20detection%20eLearning%20course.pdf)

It is a free course including 3 modules, and would take approximately 1.5 hours to complete

The pdf details what ASF is, an overview of the course, its intended audience, and instructions (screenshots and a QR code link) to access.

An alternative way to get to the course was: 5 clicks from Home > Years F-12 Lesson Plans. This is better served by having links to page numbers, or alphabet letter, since

anyone who clicks on Next wouldn't know how far down to click to get to their desired topic.

Content

The description of the course indirectly alluded to some behaviours after undergoing the course:

- Awareness of potential impacts of ASF
- Prevention of ASF introduction and establishment
- Vigilance: Recognise and report signs of ASF to ensure early detection

Understanding

The course indicates a general overview and good understanding of biosecurity specific to ASF.

Relevance

Some relevance of the content to African swine fever present in feral pigs. General comprehension and clarity of message

Good comprehension and clarity of message is present, but is mostly specific to the course

Contact details

Contact Us available on commands running across the top and in footer of the Homepage. Includes phone, email, address, and fields to fill in for queries.

Other resources that mentioned biosecurity came up after navigating the Primezone website, but were excluded because they pertained to pests and resources for Primary students:

<https://www.primezone.edu.au/resource/biosecurity-surveillance-in-schools-activity/>

This provided a link to NSW DPI in Schools site: Take your students outside this summer (Stage 3), (PEBN* Outside Learning Yrs 5-6) containing a .pdf Teacher guide, biosecurity surveillance at school (ppt) and a student worksheet (Word) but focused on pests (ie cane toads, fire ants, exotic bees, RES turtle, BMSB) and did not include text on cloven-hoofed animals/livestock.

**Peri-urban Environmental Biosecurity Network*

<https://www.primezone.edu.au/resource/biosecurity-protecting-our-plants-and-animals/>

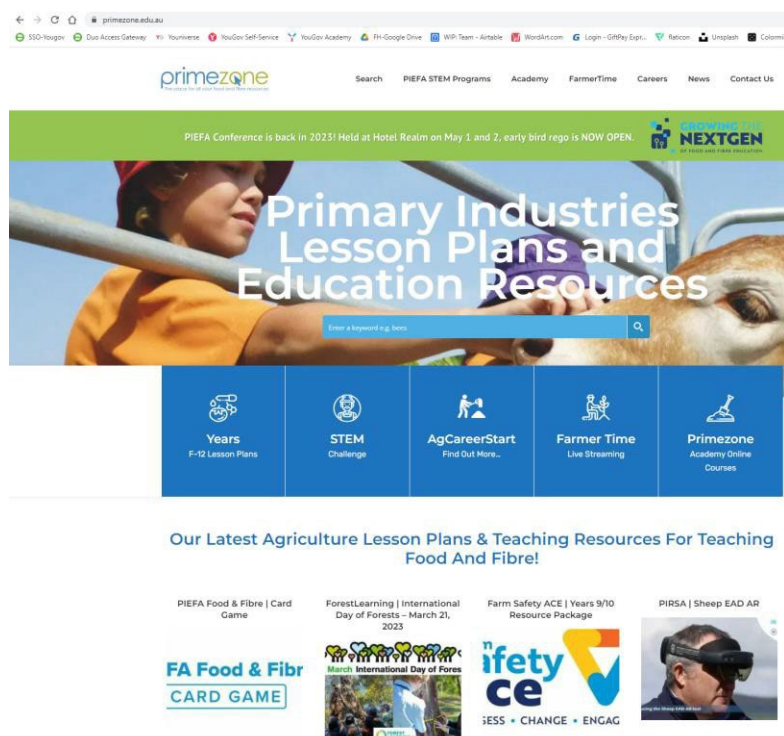
Has more content about exotic pests and diseases found in AgriFood, and how it is managed through Border Security/Customs. 'Animal' is broadly mentioned 29 times in the document (and could also mean crustacean not just cloven hoofed animals), and mostly as part of an exercise to introduce broad concepts and identify threats.

https://www.primezone.edu.au/uploaded_files/resource_uploads/import/AgriFood_TeachersGuide_Biosecurity2-A-1.pdf

<https://www.primezone.edu.au/resource/biosecurity-warrior/>

There was also Biosecurity Warrior, but seems intended for juniors / Primary resources (not High School students):

<https://www.primezone.edu.au/resource/all-about-eggs-secondary-school/>



Royal Agricultural Society of NSW: Education Resources

Pathways to finding the document

Navigating the website generally results in a loop between Education Resources or Teacher Professional Development. There was mention of Knowing & Growing under Teacher Professional Development, but it only contained a blurb with no further links:

Knowing Growing is a joint initiative of the NSW Department of Primary Industries, the Primary Industries Education Foundation of Australia (PIEFA) and the Royal Agricultural Society of NSW.

Under Education > Education Resources > Secondary Resources, clicked on A Teachers Guide to Dairy 7- 10:

Dairy Teacher workbook briefly mentions an 'Exploring Theme: Biosecurity' towards the last pages (p25):

<https://www.rasnsr.com.au/globalassets/document-library/rasnsr/education/dairy-teacher-workbook.pdf>

Since it was only briefly mentioned as part of an exercise workbook, this has been excluded from the review.

Using the Search bar, and browsing between Education Resources or Teacher Professional Development sections did not bring up specific animal biosecurity documents. The nearest were articles on:

Pollinators (an Event link that mentioned bees and a blurb on how to protect it from a range of biosecurity threats)

<https://www.rasnsr.com.au/events/farm-day-excursions/workshops/pollinators/> Goat Exhibitor information, with a link to a website containing .pdfs on farm biosecurity:

<https://www.rasnsr.com.au/sydney-royal-competitions/competitions/goat/exhibitor-information/>

The links in the site above redirected to Farm Biosecurity website:

<https://www.farmbiosecurity.com.au/toolkit/declarations-and-statements/>

- National Health Declarations are a requirement for exhibitors bringing in animals to the competition, and are available for the following animals:
 - Cattle
 - Goat
 - Sheep
 - South American Camelid

NATIONAL SHEEP HEALTH DECLARATION July 2019

Property Identification Code (PIC) of this property
This MUST be the PIC of the property that the stock is being moved from

--	--	--	--	--	--	--	--	--	--

Attached to accompanying NVD/Waybill No.

--	--	--	--	--	--	--	--	--	--

SECTION A – Biosecurity Information

1. All consigned sheep are from a Livestock Production Assurance (LPA) accredited property? Y ☐ N ☐

2. The number of different sources of sheep that have been **introduced** onto the consignment property in the last 5 years is:

0 (closed flock) ☐ 1-5 ☐ 6+ ☐ Rams Only ☐

Only one section directly mentions or asks for biosecurity information, and the rest pertains to Animal Health and Treatment.

- The Farm Biosecurity website also contains links to:
 - Foot-and-mouth disease
 - Lumpy skin disease
 - Japanese encephalitis
 - Farm Biosecurity News

- Farm Biosecurity Toolkit → this enables you to build a comprehensive toolkit based on the animals you have

Upon reading further into the Farm Biosecurity website, it seemed out of scope of the education system and seemed to lean more towards commercial agriculture biosecurity. This has been excluded from the review.

Contact Us

Contact Us available as part of commands running across top 1/3 of the site and 2/3 down (before the site footers). It includes email, phone and fax details.

In-Depth Interviews

Ag teacher discussion guide

1. Introduction	3 minutes
• Thank participant • Introduce self and Faster Horses • The research is being conducted for the NSW Department of Primary Industries to understand the level of biosecurity awareness, practice and emergency animal disease (EAD) prevention in NSW high schools with farms. • Logistics - use of guide, will take 45 minutes • No right or wrong answers, want to hear about your experiences and your opinion. • Responses are <u>confidential</u>, recording for analysis purposes (<i>ensure session being recorded</i>) your comments <u>will not be identifiable</u>. Emphasise.	
2. Context setting	5 minutes

Firstly, tell me a little bit about yourself:

- Teaching journey to where you are now, where you studied, what subjects, agriculture trained or not, how is experience reflected in current teaching post...
- Current school, role and responsibilities, importance of agricultural/farm element within role. *Understand if it the main focus of their role is agricultural/farm or if other teaching/role priorities make it less so.*

Thinking of your agricultural/farm responsibilities:

- What does a typical day involve? Interactions with who, students and staff, doing what? Where do you spend most of your time; classroom, staff room, office, with the animals, off campus?
- Who are the other members of school staff involved in agricultural/farm? What is different about their roles and responsibility compared to yours? *probe to*

understand roles of staff involved and the seniority/chain of command. E.g. Principal, head of science, senior ag teacher, farm manager, farm assistant

- What does a good day look like? What makes it so? And a bad day? *Indirectly uncovering opportunities and barriers for biosecurity practises*

3. Knowledge and awareness of animal health and biosecurity 10 minutes

Let's talk now a bit more about the animals in your school:

- What animals do you have, how many do you have, where are they are housed? *May be a recap or more details depending on answer in context setting section.*
- What type of activities are the animals involved in inside/outside of the school campus? *Moderators note: familiarise the potential answers through <https://education.nsw.gov.au/teaching-and-learning/animals-in-schools/compliance/approved-activities> and <https://education.nsw.gov.au/teaching-and-learning/animals-in-schools/compliance/categories-of-activities>*
- Thinking about the last 12 months, what type of animal health and/or welfare issues have you encountered for the animals in your school? *Moderators note: familiarise the potential answers through <https://education.nsw.gov.au/teaching-and-learning/animals-in-schools/animals-in-schools-issues>*
 - What actions did you (or the school) take? How did you know what action to take?
 - Who was involved? Internally and externally?
 - Where did you go for information and advice?

Probe procedures in place, easy/ hard to access and implement, who was involved and informed, internally and externally incl. authorities, vets, parents, wider community.

If biosecurity mentioned

- What was the biosecurity issue? How did it come about e.g., how was it transmitted, by people, animals?
- How was it discovered? Once discovered what action was taken?
- How did you know what action to take?
- Who was involved? Where did you go for information and advice?

Probe procedures in place, easy/ hard to access and implement, who was involved and informed, internally and externally incl. authorities, vets, parents, wider community.

Moderator note: Gather responses for at least one issue plus biosecurity, (if they have had a biosecurity issue), to understand if there are processes in place for other issues, inconsistencies, or difference in issue response.

4. Attitudes towards Biosecurity

10 minutes

- What do you think are the most important factors for ensuring the health and/or welfare of animals in schools?
- How important is biosecurity in ensuring good animal health and/or welfare in your school?
- What does the term 'biosecurity risk' in relation to animals in schools mean to you?
 - What are your school farm's risks, where do they come from, *Probe: animals, people?*
 - What disease threats do you know of? Are some biosecurity risks bigger than others depending on animal type or disease? If so, which ones and why?
- Have you heard of the term 'emergency animal disease'? What do you know about it?
 - What first comes to mind when you think about this? Why is that?
 - It used to be known as 'exotic animal disease', what do you know about it?
- One example of an emergency animal disease (EAD) is foot-and-mouth disease. What do you know about it?
- What priority is given in your school to understanding and preventing animal biosecurity risks including emergency animal disease both in the school farm and animal industries more broadly?
- How do you feel about the level of knowledge of animal biosecurity and EAD risks in your school?
 - Among agricultural staff
 - Among general school staff
 - Among students
- Who is responsible for ensuring (the above audiences) understand good animal biosecurity risk management and the steps for prevention? *Probe any difference between ag staff and general staff, internal vs external organisations, bodies such as NSW DPI, DoE, NSWAAAT, RAS, Local Land Services etc*
- What role do schools play in managing and preventing biosecurity risks in the wider community?

Probe on communicating and reporting incidents to community and govt bodies.

- Thinking about how your school currently prevents and manages biosecurity risks, what plans or procedures are in place?
 - Do you have a biosecurity management plan? What template was used?
 - *If yes, there is a plan in place* Where are they held and who is responsible for keeping them up to date? How often are the plans reviewed or updated? How many people know about these documents or plans? Who is aware of where the plans are held and understands what actions to take? How are they socialised through the school?
 - *If no plan in place.* Are there any specific reasons why there is no biosecurity management plan in place? *E.g.in progress, change of staff/responsibility, only recently had animals at school.* .Who understands what actions would need to be taken in the event of a biosecurity risk or EAD outbreak?
- How do those plans translate into the day-to-day prevention of animal biosecurity risks in your school? *(OR if they don't have documented plans, how do they manage the following in their day-to- day)* Probe across the following areas:
 - Farm inputs and outputs, such as: equipment, feed, bedding, waste (food, bedding, and effluent waste)
 - Animals coming into school or leaving school
 - Visitors (students, staff and outside visitors) to school animals
 - Fencing and feral animals
 - Staff training, are the plans tested each year? (e.g. animal husbandry, NLIS management *all animals need to be tagged and reflected in record keeping*, emergency animal disease awareness)
 - Documents and reporting? (e.g., health, treatment and/or feed records, NVDs for important stock movements) *movement needs to be recorded within 48hours, not to be assumed the ag show will do*
- What parts of managing animal biosecurity risks are easy? Which parts are difficult?
- How do you feel about the plans or procedures in place at your school?
 - Good examples of biosecurity risk management
 - Areas where you feel there is a gap
 - Are there barriers to implementing better plans and procedures. If so, what are they? *Probe time (why), lack of staff, responsibilities not clear, other priorities, (what are they) support of Principal, access to communication*

channels internally and to students and parents e.g. virtual and physical resources; posters, staff meetings, school websites, newsletters.

- If there was EAD outbreak impacting the animals in your school, describe the steps you would take in managing the outbreak, what action would you take? Who would be involved? *Probe procedures in place, easy/ hard to access and implement, who would be involved and informed, internally and externally incl. authorities, vets, parents, wider community Are these also documented?*
- Where can additional resources and information be found to understand good animal biosecurity risk management and EAD outbreaks? If you don't know, where would you expect to find them? *external organisations, bodies such as NSW DPI, DoE, NSWAAAT, RAS Local Land Services, PIEFA, Agriweb etc*
- How should the information be made more available or accessible? What would you prefer?
- *Probe on communication channels and formats*
- What resources do you wish you had, that would support or help communicate your current biosecurity practices, OR would help you implement better/additional biosecurity practices? What would these look like (e.g. pre-prepared social tiles, posters, signage, templates, webinars etc)

6. Close

2 minutes

We've covered a lot, but before we wrap up, is there anything else you would like to say about the topic?

We are conducting a number of interviews with staff who work at high schools with animals to understand how we can assist schools in their preparedness for biosecurity and EAD outbreaks. The next stage is to conduct a co-design workshop in May to bring these ideas to life. Is the workshop something you would be interested in taking part in?

Thank you for your time, and we will be email your incentive, cash egift card.

Stakeholder discussion guide

7. Introduction

3 minutes

- Thank participant
- Introduce self and Faster Horses
- The research is being conducted for the NSW Department of Primary Industries to understand the level of biosecurity awareness, practice and emergency animal disease (EAD) prevention in NSW high schools with farms.
- Logistics - use of guide, will take 45 minutes
- No right or wrong answers, hear to listen to you experiences and honest opinion

- Responses are confidential, recording for analysis purposes (*ensure session being recorded*) your comments will not be identifiable. Emphasise

8. Context setting

5 minutes

Firstly, tell me a little bit about yourself:

- Journey to where you are now, any agriculture background and training, how experience is reflected in current position...
- Current role and responsibilities in relation to the management and prevention of animal biosecurity risks in secondary schools.

Thinking of your role and responsibilities for animal biosecurity in secondary schools':

- What does a typical day involve? Interactions with who, doing what? Where do you spend most of your time? Office, in schools, with agriculture educators, collaborating with other agencies or organisations.?

9. Role of the organisation

12 minutes

Reminder that the discussion is focussed on animal and biosecurity in secondary schools.

- Tell me a little bit more about your role in relation to the broader organisation
Establishing influences to policy, collaboration and network for future coordination of help for schools:
 - Department within the organisation the role sits in?
 - Colleagues or peers who have responsibilities, wholly or partially for animal biosecurity in schools, or if not, more generally, animal welfare, in that department or in other departments.
- What is your organisations approach to helping secondary schools have animal biosecurity risk management procedures in place generally?
 - And specifically for responding to EAD outbreaks?
 - What communication pathways are used and what support or activities are available? *Probe: emails, newsletters, website, podcasts, videos, printable school support, forums, training (in person/on line), access to experts?*
 - For outbound activity e.g. emails, newsletters, how often are the sent, probe event vs term driven.
 - What communication pathways work well and why? *Probe any stats on page visitation, emails open, take up of courses, downloading of templates/posters etc*
- Who has responsibility for formulating policies and approach? Who is responsible for signing off policies?
 - How often are policies and approach revisited?

- How are any updates to policies or approaches and more general updates communicated to schools e.g – templates, posters, training/podcasts/videos available
- What collaboration takes place with like organisations in other states or other agencies and organisations to align policies and approach? How does the collaboration take place (piecemeal or scheduled), how often?
- If there was an immediate biosecurity risk or EAD outbreak impacting a school, how would your organisation respond to helping schools in mitigating risk or containing the outbreak?

10. Biosecurity practises and EAD readiness in school

11 minutes

- What do you consider to be the most important factors for ensuring the welfare of animals in schools?
- How important is biosecurity in ensuring good animal welfare in schools?
- In your opinion, what priority is given in schools to understanding and preventing animal biosecurity risks including EADs?
- What is the level of knowledge of animal biosecurity and EAD risks in schools?
 - Among agricultural staff
 - Among general school staff
 - Among students
- Who is responsible for ensuring (the above audiences) understand good animal biosecurity risk management and the steps for prevention? *Probe any difference between ag staff and general staff, internal vs external organisations, bodies such as NSW DPI, NSW DoE, NSWAA, RAS etc*
- Who is responsible for providing supporting resources to implement practises in schools e.g. signage, webinars, training etc?
- What role do schools play in managing and preventing animal biosecurity risks in the wider community? *Probe on communicating and reporting incidents to community and govt bodies.*
- Thinking about the last 12 months, what type of animal biosecurity issues are you aware of occurring in schools?
 - How did it come about e.g., how was it transmitted, by people, animals?
 - How was it discovered? Once discovered what action was taken?
 - How did your organisation help the school?
- *Probe procedures in place, easy/ hard to access and implement, who was involved and informed, internally and externally incl. authorities, vets, parents, wider community.*

- *Moderator note: Gather responses for at least two biosecurity issues..*

11. Improving knowledge in schools

12 minutes

- *Duncan specifically in relation to shows, movement and stock showing. Nick: ex professor at Sydney uni, experience on advice given to schools following audits*
- In your experience, how prevalent is it that secondary schools have animal biosecurity risk management plans or procedures in place, including EAD? Where are they held and who is responsible for keeping them up to date?
- What do you understand to be the types of day-to-day prevention activities for animal biosecurity risks in schools? *Probe across the following areas:*
 - Animal welfare: equipment, feed, bedding, waste
 - Animals coming into school or leaving school
 - Visitors (students, staff and outside visitors) to school animals
 - Fencing and feral animals
 - Staff training
 - Documents and reporting?
- Which are easy and which are hard for schools to implement? Why is that so?
- What barriers to implementing better plans and procedure do you think exist in schools. *Probe time (why), lack of staff, responsibilities not clear, other priorities, (what are they) support of principle, access to communication channels internally and to students and parents e.g. virtual and physical resources; posters, staff meetings, school websites, newsletters.*
- What is the best way to improve knowledge in schools of biosecurity risk management and EAD outbreaks?
 - How should information about managing biosecurity risks and EAD be made more available or accessible to schools? *Probe on best communication channels and formats*
 - Who should be providing the information and support to secondary schools to improve their knowledge? *Probe DPLs role vs other organisations including NSW DoE, NSWAAAT, RAS, LLS, PIEFA*

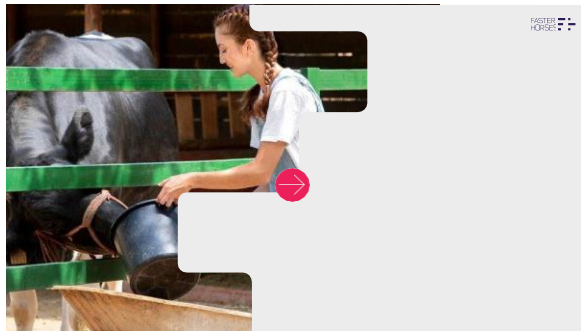
12. Close

2 minutes

We've covered a lot, but before we wrap up, is there anything else you would like to say about the topic?

Thank you for your time.

Co-Design Workshop Deck with outputs



The agriculture teacher in most high schools is in a distinct position.
Passionate about the subject, usually through a personal connection with the topic, the role requires a measure of commitment beyond other disciplines, many times without the internal support network enjoyed by other subject's staff.

Aside from teaching, the day-to-day responsibilities for animal welfare and the processes and requirements for related record keeping, are the priority for ag teachers.

And though they understand the importance of biosecurity and the potential threats, their assessment of the risk and ability to minimize it within the constraints of their school environment, impacts the extent of biosecurity measures and Emergency Animal Disease (EAD) preparedness.

Time pressured it commitments a o e yond colleagues and t esc ool day

RESPONSIBILITIES

ma eat a d e f e f e d t r o o t o a r e a d
 o b e r a t o e a d t o o t o f o r
 P r a t a a d a r o o m t e a t t e p r a t a e m e t
 t e r p e o
 m a m a e m e t a d o t i f o o t e r a d a d o
 a e m e t e S e m a d m f e e d o t r o
 a t a e t e p a r t m e f a m a t a t o e p t m d e r
 t e a p r o m o e a e e d m t e r a p o r t

IMPLICATIONS

m a o b e r a t o f d a m e t a t o a a r e e o f E m e r
 m a e a e E
 T e m e t d e t p e d t a m a f a m a r e m t
 b o e r t m e a r e a d t e e d f o r m a e m e t
 T e e t e t o f t e o r e t a f o o e t e r e d
 t
 r e a t t e o m m t e a d e t o r o t d e o o a r e
 r a o e e r m m d a t e o o p p o r t e e a r t e
 e e t o f a o t b r e a r e p o e

AGRICULTURE TEACHERS & STAFF: RISK
 All farms in high schools are different, ag teachers are aware of the numerous risks and have assessed the level based on their school environment.

RISK

- + People: Students, other teachers, visitors, local/school community (immediacy)
- + Animals: Feral, animals from home
- + Farm Specifics: Location incl. housing and paddocks, animal movements, chemicals, feed, new animals, pests, parasites and plants.

Not only do teachers take responsibility for the immediate farm specific risks, they also feel ultimately responsible for all biosecurity risks, when in fact, they are whole of school risks which should be overseen by the Principal.

Given the numerous day to day risks and pressure on their time, ag teachers are most likely to focus on these and respond reactively, rather than proactively, to potential threats.

Implications:

- Managing biosecurity risks and ensuring measures are in place involves the in-school community and beyond.
- Communication on the topic needs to encompass all audiences to focus on Preparedness by embedding measures to reduce risks.
- With the potential threat of EADs, the focus needs to be on Awareness and Response for disease mitigation.

T a topics for e co design. res out sessions re c t e m e n t s o f t e n d i n g s. are tactical practical simple lo cost e a i o u r
 inter entions can support surveillance and early detection practises in ip sc ools

PRE ENTION

Be a i o u r R e m i n d e r s

R e m d i e o o m m t
 t e a a d e t e r a o f o o d
 b o e r t b e a o r

AWARENESS

Animal O s e r a t i o n

S o a e E m p t o m
 d e t e d t r o m a
 o b e r a t o

RESPONSE

Reporting Out r e a s

a r f t e p r o e f o r r e p o r t
 E o t b r e a

o t o b e o d e r e d:

- + o t o e a e a d o o r d a t e t t e p a r t e r e t o r
- + o m m a t o p a t a o d b e m o t e f f e t e f o r t e p r o e

SOURCES OF KNOWLEDGE & SUPPORT
 There was clear delineation on department roles, with a network of other sources accessed for information

- + The DoE resources were most referenced in sources of support.
- + Local Land Services was more prevalent than expected and included training, with some instances also being the pathway to a Vet.
- + Local ag networks and NSWAT provide the connections for ag teachers in the absence of an internal school network.
- + MLA and LPA are key for schools with commercial endeavours.
- + PIEFA was not front of mind for support for biosecurity and EAD.
- + Personal contacts of family and friends are also a point of reference.

EMAIL
 e o r e d f o r m a t o r a d a t a o f o r i t t a e e m e r a d e m b e d d e d t o e r e

ONLINE COMMUNITY
 o o r a o b r a t e s e a d r i a o m m t e n a a n a p p o s o t e t

TRAINING
 P r o f e s s o r e m e t a a n a m a d a t a d e d e d E S S t e f e r f o r t h e t d o t r a a o f o e r e r e a d t o s

DE ISS
 o t m e t e c h t a p o t e t a o o m p t e r a d a d r o p n e a e r o m m a f o e t e a n t o r a g e S e r e S

ONLINE RESOURCES
 d e t e d t e a o r e d o f o d e t y g o o d a d a o o t h o m m a d

POSTERS
 t o t o m o o a n d o p p o d e f o r b e o r d e a r e e

MEETINGS
 o m m s f o r m a t a a d o a a c o t e d e a t a f t o s a d p e r o r e t o o p a r t m e e t i n g s t a d e t t a f t o m m t

MERCHANDISE
 a d e t e r t o r f o r a b a d o p d p e r e m

BREAK OUT SESSION: THE ASK

- Co design tactical, practical, simple, low cost behaviour interventions to support surveillance and early detection practises in high schools.
- Based on the research findings, the following topic areas will be the focus for the breakout groups

1: PREVENTION

Behaviour Reminders

- + Remind the school community (internal and external) of good biosecurity behaviours

2: AWARENESS

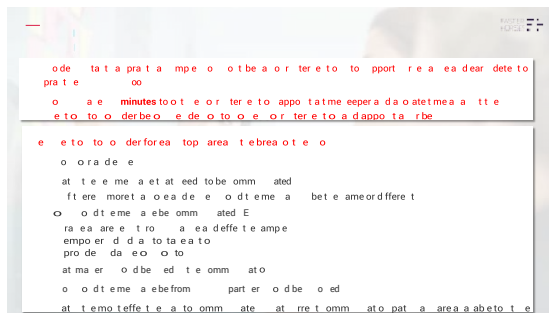
Animal Observation

- + Socialise EAD symptoms identified through animal observation

3: RESPONSE

Reporting Outbreaks

- + Clarify the process for reporting EAD outbreaks



CO DESIGN OUTPUTS: TEAM 1 - PREVENTION

TEAM 1: PREVENTION

Jane Bennett, Megi Dunford, Nicollet, Scott, Ann-Louise Brocklebury

Behaviour: Reminders

- Remind the school community (internal and external) of good biosecurity behaviours.

VISITORS

All visitors must wear a mask, hand sanitiser, and a biosecurity boot.

Audience is the whole community, broken down interval vs external stakeholders:

- Teacher participants represented very different schools, a reminder that all schools are different and messaging has to be broad.

Key reminders of good biosecurity measures to focus on for behaviour intervention:

- Hygiene:** home to school, in school, school to ag farm. Focus on behaviours that can feasibly (cost effective and practical) be applied e.g. **hand washing**. Other measures more dependent on specific school environment are foot bathing and single exit and entry points, hygienic clothing discussed but not currently feasible.
- Feeding School Farm Animals:** People food vs animal food relevant for internal stakeholders and external (where public can access animals at boundary).
- No Entry to School Farm:** Especially relevant for external stakeholders.

Communication tools

- Hygiene:** Posters about school, in classrooms on farm. Already many in ag classrooms but can act as reminder to staff to remind students, continuous, habit forming. Teachers modelling behaviours; consistent and integrated NOT additional in class activity linked to the syllabus (see team 2).
- Feeding School Farm Animals:** Posters on the farm and in the ag classroom, image provided to post on school Facebook site (see team 2).
- No Entry to School Farm:** Utilise/make available Local Land Services Biosecurity signage to ensure proper visitor procedures carried out before entry.

Messaging and imagery

- Hygiene:** Posters; factual, simple and visual. Altruistic messaging coming from a range of young farm animals, 'keep me safe'.
- Feeding School Farm Animals:** As above.
- No Entry to School Farm:** Include designated persons contact number on the sign, which could be ag teacher, farm assistant, Animal welfare officer (discussion on who it should be included LLS or DV).

Overall: All school Biosecurity drill, like a fire drill, as part of broader ag day, or standalone 15 minutes at the end of assembly, kids get excited, use the event to remind them of the good biosecurity behaviours.

CO DESIGN OUTPUTS: TEAM 2 - AWARENESS

TEAM 2: AWARENESS

Nat Offler, Dan Rymelster, Rosemary Hegner, Briory, Liz Watkinson

Animal Observation

- Socialise EAD symptoms identified through animal observation.

WEEDS

Audience is agriculture teachers, students and the external school community/public:

- The Department receives reports directly from the public who have observed school animals and are concerned.

Socialising EAD symptoms identification through observation:

- Easy reference, what to look out for guide:** Examples given, UTE Guide for Weeds and the current EAD Glove Box Guide currently available to vets produced by NSW DPI.
- Include in the syllabus:** Fostering students with the knowledge to take into home farm or farm animal environments.
- Provide school community with reminders:** To focus on identification of diseases of concern (and how to report, team 3 topic).

Communication tools

- EAD Guide:** Make the EAD Glove Box Guide available to ag teachers in hard and soft copy, for use and to be in the classroom and used for reference, also by ag students. (Additionally provide to the Hotline call centre personal for their reference.)
- Upcoming 'have your say' draft syllabus review:** Ensure input to increase content of biosecurity broadly and EAD identification specifically.
- Social media:** Provide cut and paste content for schools to post on the school's Facebook page and Instagram account, which are more widely accessed by the school community than school's websites. Content produced centrally removes burden for ag teacher and ensures consistent messaging.

Messaging and Imagery

- EAD Guide:** Would existing content need adaptation? Resolving collateral in line with vets creates a sense of gravity.
- Inclusion in Syllabus:** Stakeholders provide input into NESSA consultation process on draft syllabus.
- Social media:** Shock visuals discounted given sensitivity with animal welfare groups, instead use cartoon animal. Messaging suggestions included 'This is Bob...', case studies, given the perception it can't happen in schools, number comparisons 'It only takes 1 person to save 1000 animals, only 1 needs to die'.

CO DESIGN OUTPUTS: TEAM 3 - RESPONSE

TEAM 3: RESPONSE

Gen Bonello, Michael Wright, Karen Sower, Sam Jurett, Lara Abby, Cam-Byrd

Reporting Outbreaks

- Clarify the process for reporting EAD outbreaks.

Audience is the ag teacher, Principal and the DPI commms team themselves:

- Students not included as reporting needs adult oversight and some phone numbers should not be widely divulged.

Two ideas for ensuring the exact process is followed for reporting EAD outbreaks:

- Flow Chart:** showing what has to be done and who needs to be contacted (phone tree), in the appropriate order. The flowchart will have blank sections so school specific information, local vet number etc can be added. It will include timetables for each stage/step with responsibilities noted. The flow for process suggested as:
 - Stage 1: Comm: Teacher calls hotline, informs Principal. Actions: Close farm, isolate affected animal, isolate kids that have had contact, assess any recent animal movements*, spill kit type/mechanical interventions, on line form filled, photos uploaded.
 - Stage 2: Comm: Principal informs DEL, Work Health & Safety, Animal Welfare Officer, who liaises with DV, other ag staff informed. Action: Lock down school. (?)
 - Stage 3: DPI and DV on site and implement processes, liaising with ag staff and Principal. Dept of Health visit, DoE / DPI media and legal teams engaged.
- Checklist:** the same process presented as a checklist template to be completed, signed, dated, with comments and details of who reported, with the relevant numbers included e.g. hotline, Principals, DV.

Communication tools

- In school:** Posters of flowchart in teacher only areas; staffroom, staff noticeboard: through DELS (Directors, educational leadership). Copies of checklist available in school office, ag staffroom.
- Online:** Animals in schools website, Rural Ag network, NSWAAAT.

Overall: Discussion on, which the **relevant numbers** are to be included within the flow chart or checklist, examples given of the loop not being closed between the DPI hotline and DoE stakeholders depending on who was first contacted when incidents occur: if the EAD hotline given out more broadly, call ins would increase and be less specific.

*Ability to access NLIS database with usernames and password key and should be available with flowchart/checklist.

Communications Testing

Check list: Reporting Suspicion of EAD – Example A

SCHOOL FARM DETAILS		
School Principal	Name	Phone
PIC/S		LLS District
Veterinarian*	Name	Phone
Government (LLS) district vet*	Name	Phone
NLIS registration #		IAR #
PigPass registration #		Pig tattoo /brand no.
NSW DET Animal Welfare Coordinator	Name	Phone
EMERGENCY ANIMAL DISEASE HOTLINE – 1800 675 888		

Step	Description	Complete
------	-------------	----------

1	Recognise the signs of an Emergency Animal Disease Any unexpected disease symptoms, unusual behaviour or unexplained deaths could be signs of an EAD. The following list are examples of things that are suspicious for an EAD: a) the appearance of ulcers or blisters on the mouth or feet b) the appearance of skin nodules on cattle, c) an unexplained and significant increase in a mortality (death) rate or morbidity (illness) rate in animals, d) an unexplained and significant fall in production levels e) the appearance of other unexplained and significant clinical signs including, but not limited to, unexplained neurological signs or conditions. You have a duty, or legal obligation, to notify authorities immediately if you know or suspect that an animal has an Emergency Animal Disease COMMENTS:	☐
2	Collect available information to inform the authorities a) Your name and location and contact details b) School farm location c) Species of animals affected d) The clinical signs/symptoms present e) Total number of animals on farm and how many are affected f) Brief history including husbandry actions, onset of signs and recent movement of animals on and off the farm g) Photos/videos of the animals and clinical signs if possible COMMENTS:	☐

3	Notify the authorities of your suspicion of an Emergency Animal Disease Call your Local Land Services on 1300 795 299, tell them you suspect an Emergency Animal Disease and ask to speak to the District Vet. If you are unable to speak immediately with the LLS District Vet, call the Emergency Animal Disease Hotline on 1800 675 888. Your call will be taken by a national triage call center and referred to NSW DPI who will return your call (within 45 minutes), assess the situation and advise on appropriate next steps COMMENTS:	☐
4	Notify management of the situation Inform other relevant personnel at the school about the situation. This could include a: • farm manager or Principal, plus the • NSW Dept Education Animal Welfare Coordinator or Rural Learning Exchange (Ag Coordinator), for example. COMMENTS:	☐
5	Follow any instruction provided by the District Veterinarian or EAD Hotline officer	☐

	The LLS District Vet or DPI EAD hotline officer will provide advice on the best course of actions depending on their assessment on the level of risk posed by the situation. COMMENTS:	
--	---	--

COMPLETED BY: _____ DATE: ____

ROLE: _____

Glossary:

DPI Department of Primary Industries DV District Veterinarian

EAD Emergency Animal Disease LLS Local Land Services

Check list: Reporting Suspicion of EAD – Example B

SCHOOL FARM DETAILS			
School Principal	Name	Phone	
PIC/S		LLS District	
Veterinarian*	Name	Phone	
Government (LLS) district vet*	Name	Phone	
NLIS registration #			
PigPass registration #		Pig tattoos/brands	
NSW DET Animal Welfare Coordinator	Name	Phone	
EMERGENCY ANIMAL DISEASE HOTLINE – 1800 675 888			

Step	Description	Tick when complete
1	Recognise the signs of an Emergency Animal Disease If observing the following in your school animals: unusual disease symptoms, abnormal behaviour, unexpected deaths; or you suspect an emergency animal disease in your animals, immediately call your vet, Local Land Services District Vet (LLS DV) on 1300 795 299, or the Emergency Animal Disease (EAD) Hotline on 1800 675 888. More specifically, the following are declared to be a biosecurity event and must be reported immediately to either an LLS DV or the EAD Hotline: a) the appearance of ulcers or blisters on the mouth or feet of ruminants or pigs, (a1) the appearance of skin nodules on cattle, b) an unexplained and significant increase in a mortality rate or morbidity rate in plants or animals, c) an unexplained and significant fall in production relating to plants or animals, d) the appearance of other unexplained and significant clinical signs in animals including, but not limited to, unexplained neurological signs or conditions.	
2	Collect available information to inform the authorities a) Your name and location and contact details b) School farm location, c) Species of animals affected d) The clinical signs/symptoms present e) Total number of animals on farm and how many are affected f) Brief history including husbandry actions, onset of signs, recent movement of animals on and off the farm g) Photos/videos of the animals and clinical signs if possible h) An alternative phone number to ring, as you may be teaching or on another phone call when they return call.	☐
3	Notifying responsible staff member Call the school farm manager (if not the person to report the highly suspect livestock) for current SITREP. 1. What are the clinical signs of the animal? Request photos/ video with a smart phone if able to get footage without increasing contact with animals. 2. Are there livestock in the surrounding paddocks or pens?	☐

4	Notify the authorities of your suspicion of an Emergency Animal Disease If suspect livestock are showing clinical signs consistent with an Emergency Animal Disease (EAD) immediately call (you may be requested to send images of lesions and any available history): 1. Call your Local Land Services and ask to speak to a District Veterinarian (DV) 1300 795 299 2. If you are unable to speak immediately with the LLS District Vet, call the Emergency Animal Disease Hotline 1800 675 888 a. Your call will be taken by a national triage call center and referred to NSW DPI b. The EAD Hotline duty office in NSW will call back within 45 mins of notification	☐
5	Notify management Inform other relevant personnel at the school about the situation. This could include a: • Farm manager or Principal (if not already notified), plus the • NSW Dept Education Animal Welfare Coordinator or Rural Learning Exchange (Ag Coordinator), for example.	☐

Likely actions following a disease notification to the Local Land Services DV or EAD Hotline

Likely response steps	Description
A	LLS DV will carry out a clinical examination of highly suspect livestock and take appropriate samples as required. Based on the level of risk, assessed prior to entering the farm area, PPE may be worn followed by decontamination out of the paddock/pen/farm. Suspect animals may be categorized into: 1. Low suspicion = clinical signs not consistent with EAD, no further action required to rule out EAD. Treat as normal disease investigation. 2. Moderate suspicion = EAD unlikely but further investigation is required 3. High suspicion = clinical signs consistent with an EAD

B	On advice of LLS DV or EAD Hotline Duty Officer, confirm suspicion of EAD in the school with school farm manager. Advise that the NSW Chief Veterinary Officer (CVO) has been notified and is currently assessing the situation. The School farm manager may be directed to: 1. Organize school farm staff to man the entry/ exit gates to the school farm. 2. Stop the entry/ exit of livestock until the disease risk can be assessed. 3. Do not allow any non-essential people (eg. students, non-essential staff, visitors etc) into the school farm 4. Notify all staff of a possible disease situation and request that they and all students remain away from the school farm until the CVO has made a risk assessment of the situation. 5. If the sale is impending/ in progress, it can proceed but no livestock can be moved until further notice from the CVO.
C	Samples will be sent to the lab for testing.
D	The school farm manager may be asked for copies of National Vendor Declarations (NVDs) for affected / all farm animals to assess likelihood of disease introduction via this route.
E	Request non-tasked persons (school farm staff/ government veterinarian/ biosecurity officers) to begin setting up decontamination checkpoint at exits. It is recommended to set up one decontamination point for low-risk persons (non-agriculture staff and students) and another decontamination point for high-risk persons (agriculture staff and students - persons that have been in the school farm areas)
F	The LLS DV will be your primary point of contact throughout – providing updates, guidance and support.

Glossary:

CVO	Chief Veterinary Officer
DPI	Department of Primary Industries
DV	District Veterinarian
EAD	Emergency Animal Disease
LLS	Local Land Services
NVD	National Vendor Declaration
PPE	Personal Protective Equipment

Visiting School Farm Signs



Internal school farm fence sign

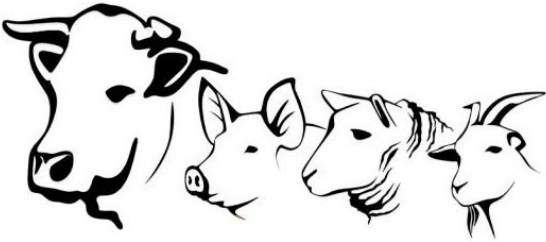


External fence feeding sign



External entry point sign





Glovebox

Guide

Biosecurity, Emergency Animal Diseases
and preparing livestock for transport.





Online evaluation survey



Biosecurity on NSW
high school farms

A RESOURCE PILOT EVALUATION

April 2024

Introduction

Thank you for being part of the in-school trial to test a number of biosecurity and disease reporting resources. We are seeking to evaluate the usefulness of these biosecurity resources that were developed as part of the "Biosecurity awareness and EAD preparedness in NSW schools" project.

Your input on how successful (or not) these resources were in supporting your teaching outcomes, school farm biosecurity practices, disease reporting and emergency animal disease (EAD) preparedness will inform whether further updates are required and their value as a resource to all NSW schools with farms.

Completion of this survey will be taken as implied consent to participate. This survey will take approximately 10 to 15 minutes to complete, and your responses are completely anonymous and confidential. All responses will be aggregated and analysed together.

This project has been approved by the NSW Department of Primary Industries Human Research Ethics Panel, Approval Number: HRE-NLR-2024-04. If you have concerns about your rights as a participant in this research, you can forward your concerns to: ethics@dpi.nsw.gov.au

If you have any questions, please contact Nicole Schembri via email: nic.schembri@dpi.nsw.gov.au

1

To begin, we'd like to understand a little about you and the school where you are currently teaching agriculture.

How long have you been teaching agriculture at the high school level?

- ☐ Less than a year
- ☐ Between 1 and 5 years
- ☐ Between 6 and 10 years
- ☐ 11 or more years

2

What is the post code location of your school?

Enter your answer

3

Approximately, how many students do you have undertaking elective agriculture at your school (Stages 5 and 6)?

Enter your answer

Do you maintain any of the following enterprises or activities on your school farm?

Please select all that apply

- ☐ Intensive livestock (pigs and/or poultry)
- ☐ Extensive livestock (cattle, sheep, goats, alpacas etc)
- ☐ Show livestock at Ag Shows
- ☐ Bees
- ☐ Aquatics
- ☐ Cropping (wheat, sorghum, corn etc)
- ☐ Horticulture (vegetables, fruits etc)
- ☐ Show fruit or vegetables at Ag Shows
- ☐ Other

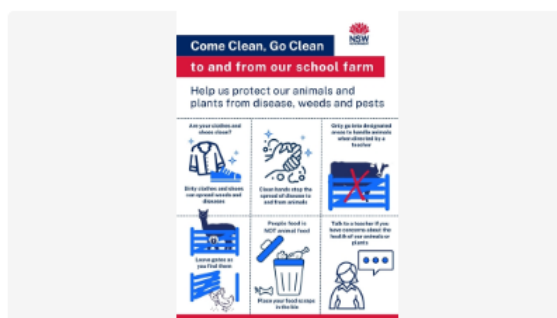
On-farm biosecurity signs and poster for raising biosecurity awareness

The following questions relate to four (4) signs/posters that were developed following a co-design workshop with teachers and schools as part of the 2023 Biosecurity in Schools research project with NSW DPI and the NSW Department of Education.

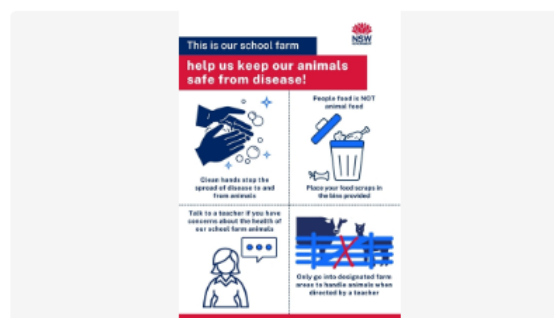
5

Which of the following Biosecurity print resources (signs/posters) did you receive for your school to raise awareness about biosecurity on your school farm?

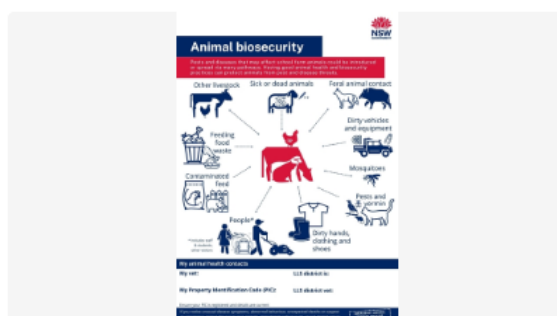
Please select all that apply



☐ 1. Come clean, go clean corflute sign



☐ 2. Farm hygiene corflute sign for internal fences



☐ 3. Disease Pathways poster



☐ 4. Do not feed the animals corflute sign for boundary fences

6

The following resources were placed in my school in:

	Term 4 2023 only	Term 4, 2023 and Term 1 2024	Didn't receive this sign	Received but didn't use this sign
1. Come clean, go clean corflute sign	☐	☐	☐	☐
2. Farm hygiene corflute sign	☐	☐	☐	☐
3. Disease pathways poster	☐	☐	☐	☐
4. Do not feed the animals corflute sign	☐	☐	☐	☐

7

Did you experience any issues to placing the signs/posters around your school?

Please provide details

Enter your answer

8

Which year group(s), do you think, were best able to relate to the signs and posters trialed in your school?

Select all that apply

- ☐ Stage 4 (yrs 7 and 8)
- ☐ Stage 5 (yrs 9 and 10)
- ☐ Stage 6 (yrs 11 and 12)
- ☐ All of the above

Come clean, Go clean and Farm hygiene signs



The next two questions relate to the 'Come clean, Go clean' sign and the farm hygiene sign.

9

Did the signs create any curiosity or discussion about biosecurity in your school?

- ☐ A little at first but the students are used to them now
- ☐ The signs are an ongoing visual reminder
- ☐ No, the signs didn't really engage the students
- ☐ Other

10

AWARENESS refers to having heard or of being familiar with the term biosecurity in the context of your school farm.

By placing the signs around your school, do you think the following groups have greater AWARENESS of biosecurity in the context of your school farm:

	Yes	No	Not sure
The school management team	☐	☐	☐
Teachers	☐	☐	☐
The student body (non-ag students)	☐	☐	☐
Agriculture students	☐	☐	☐
The broader school community (parents, friends etc)	☐	☐	☐

11

UNDERSTANDING refers to have a theoretical and applied knowledge of the importance of biosecurity as it applies to your school farm.

Do you think the signs have improved their biosecurity UNDERSTANDING in the context of your school farm for the following groups of people:

	Yes	No	Not sure
The school management team	☐	☐	☐
Teachers	☐	☐	☐
The student body (non-ag students)	☐	☐	☐
Agriculture students	☐	☐	☐
The broader school community (parents, friends etc)	☐	☐	☐

12

BEHAVIOUR CHANGE refers to an improvement in biosecurity action as it applies to your school farm.

Since the signs were placed in your school, which of the following CHANGES in BEHAVIOUR have been observed in your school and school farm?

Select all that apply

- ☐ The school management team are more supportive our on-farm biosecurity practices
- ☐ We have stricter visitor controls in place for non-school personnel accessing the school farm
- ☐ We have new school farm biosecurity systems in place since putting up our signs
- ☐ Teachers are more aware of our farm biosecurity practices
- ☐ Teachers are complying with our farm biosecurity practices
- ☐ The student body (non-ag students) are aware of our farm biosecurity practices
- ☐ The student body (non-ag students) are complying with our farm biosecurity practices
- ☐ Agriculture students are aware of our farm biosecurity practices
- ☐ Agriculture students are championing farm biosecurity at my school
- ☐ The broader school community (parents, friends etc)

Do not feed the animals sign



The following two question relates to the "Do not feed the animals" sign

13

Do you see any evidence that the "Do not feed the animals" sign had any impact on the local school community in reducing the feeding of or interaction with school livestock by passersby?

- ☐ Yes, it had an impact - feeding of animals by passersby has stopped or been reduced
- ☐ No, It made no detectable difference at all - the issue is still ongoing
- ☐ No, it made no detectable difference - it was never a problem at our school
- ☐ No, it increased the incidence of people feeding our animals from outside the school fence
- ☐ We didn't use this particular sign in our school
- ☐ Other

14

Are there any changes we could make to this particular sign to make it more effective as a visual aid to prevent passersby from feeding and/or interacting with school farm animals?

Enter your answer

15

In reviewing the signs/posters piloted in your school, are there any that you would NOT recommend for rolling out into all schools across NSW?

Please select all that you would NOT recommend as being useful

- ☐ Come clean, go clean sign
- ☐ Farm hygiene sign
- ☐ Disease pathways poster
- ☐ Do not feed the animals sign
- ☐ All the signs were useful
- ☐ Other

16

Are there any key messages relating to farm biosecurity in schools that you would like to see raised that haven't already been addressed?

What format would this particular message take?

Enter your answer

Teacher resources to support animal disease reporting

The following section relates to the animal health and disease reporting flow chart, checklist/form and the Biosecurity, Emergency Animal Disease Glovebox guide.

17

Which of the following animal disease reporting resources did you receive to support your animal health activities and surveillance on your school farm?

Please select all that apply



- ☐ 1. Reporting form and checklist



- ☐ 2. Disease reporting flow chart



- ☐ 3. Biosecurity, emergency animal disease glovebox guide

18

The following questions relate to the 1. REPORTING FORM and CHECKLIST resource.

To what extent do you agree or disagree with the following statements?

	Yes	No	Not sure	Have not yet referred to this resource
The reporting FORM and CHECKLIST helped me to explain my disease reporting obligations to my Principal / colleagues	☐	☐	☐	☐
The reporting FORM meets my school reporting needs	☐	☐	☐	☐
I have a better understanding of what I need to report	☐	☐	☐	☐
I have used the reporting FORM and CHECKLIST to support my animal disease reporting activities	☐	☐	☐	☐

19

The following questions relate to the 2. FLOW CHART and 3. GLOVE BOX GUIDE animal disease reporting resources shown above.

To what extent do you agree or disagree with the following statements?

	Yes	No	Not sure	Have not yet referred to this resource
The reporting FLOW CHART is easy to understand and follow	☐	☐	☐	☐
The reporting FLOW CHART helped me to explain the disease reporting process to my Principal / colleagues	☐	☐	☐	☐
I have a better understanding of what to expect if I need to report an animal disease (re reporting FLOW CHART)	☐	☐	☐	☐
I have used the FLOW CHART to support my animal health reporting decision-making	☐	☐	☐	☐
The GLOVE BOX GUIDE is a useful student resource	☐	☐	☐	☐
I have used the GLOVE BOX GUIDE in my lessons with students	☐	☐	☐	☐

20

Do you have any suggestions or changes that would help the useability and usefulness of the reporting FORM and CHECKLIST to support your animal health activities, disease reporting and preparedness?

Enter your answer

21

Do you have any suggestions or changes that would help the useability and usefulness of the reporting FLOW CHART to support your animal health activities, disease reporting and preparedness?

Enter your answer

22

Do you have any comments about the useability and usefulness of the GLOVE BOX GUIDE as a teaching aid / resource to support your animal health activities, disease reporting and preparedness?

Enter your answer

© State of New South Wales through DPIRD 2024. The information contained in this publication is based on knowledge and understanding at the time of writing September 2024. However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the DPIRD or the user's independent adviser.

