Final report

Animal Transport Biosecurity and Traceability Pilot

Project code: P.PSH.1420

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Abstract

The effective management of biosecurity risks across the supply chains is critical to ensure that the impacts of potential disease outbreaks are minimised and that business and industry resilience to threats is maximised. Currently, many systems used to capture and report critical information related to biosecurity risks are manual, relying on the accurate completion of forms or the maintenance of complex on-farm records that are not easily shared or analysed.

This *Animal Transport Biosecurity and Traceability Pilot* developed and piloted ExoFlare's Transport app across cattle and sheep supply chains. ExoFlare is an Australian technology company developing biosecurity risk management solutions for the agriculture and food sector.

The goal was to demonstrate how this data can generate new benefits and value across the supply chain compared to existing paper-based solutions. The project demonstrated significant potential to use data to create new operational efficiencies, increase traceability, and deliver animal welfare benefits across the supply chain compared to paper-based approaches.

This project surfaced substantive differences between the needs of livestock transportation in intensive industries (e.g., pork) and the wider red meat industry. ExoFlare successfully adapted these needs into their existing Transport product and piloted the functionality with the wider red meat supply chain.

To drive higher adoption of digital traceability and reduce biosecurity risk across supply chains, ExoFlare recommends that Integrity Systems Company/Meat & Livestock Australia continues, completes, and deploys recent work to allow API-level integration between third-party platforms (e.g., ExoFlare and others) with the eNVD system to maximise the value delivered to industry stakeholders.

Executive summary

Background

The effective management of biosecurity risks across the supply chains is critical to ensure that the impacts of potential disease outbreaks are minimised and that business and industry resilience to threats is maximised. Currently, many systems used to capture and report critical information related to biosecurity risks are manual, relying on the accurate completion of forms or the maintenance of complex on-farm records that are not easily shared or analysed.

This *Animal Transport Biosecurity and Traceability Pilot* developed and piloted ExoFlare's Transport app across cattle and sheep supply chains. ExoFlare is an Australian technology company developing biosecurity risk management solutions for the agriculture and food sector.

Objectives

The goal was to demonstrate how transport and supply chain data can generate new benefits and value across the supply chain compared to existing paper-based solutions.

These benefits are relevant to producers, transporters, and processors by enabling real-time visibility of vehicle movements and an auditable, seamless historical record of transport activity and conditions for use in traceability, risk management and animal welfare monitoring.

Methodology

1. Undertake user research
2. Adapt and develop ExoFlare's existing Transport module
3. Undertake supply chain pilot trials
4. Capture livestock transport data and integrate it with electronic National Vendor Declarations (eNVDs)
5. Demonstrate submission of eNVDs via ExoFlare's Transport module
6. Verify the value of transport information and insights
7. Identify and rapidly respond to user feedback

Results/key findings

This project surfaced substantive differences between the needs of livestock transportation in intensive industries (e.g., pork or chicken meat) and the wider red meat industry. ExoFlare successfully incorporated these sector-specific needs into its Transport product and piloted the sector-specific functionality within the wider red meat supply chain.

Benefits to industry

The project demonstrated significant potential to use data to create new operational efficiencies, increase traceability, and deliver animal welfare benefits across the supply chain compared to paper-based approaches.

Future research and recommendations

ExoFlare recommends that further work be undertaken to drive higher adoption of digital traceability and real-time data collection and management in the transport and wider red meat

supply chain industries and use these insights to reduce biosecurity risk in the livestock transportation space.

ExoFlare recommends that Integrity Systems Company/Meat & Livestock Australia continues, completes, and deploys recent work to allow API-level integration between third-party platforms (e.g., ExoFlare and others) with the eNVD system to maximise the value delivered to wider red meat producers, transporters, and processors.

Additionally, with the Livestock Production Assurance (LPA) National Vendor Declaration (NVD) database and eNVD app being legal documents that are critical to Australian red meat traceability and market access, there are significant benefits to further work enabling easier integration between third-party platforms and the LPA platform. These benefits will bring efficiencies to producers, reduce data duplication, improve data quality, and ensure a seamless user experience for the red meat supply chain whilst protecting the future of food.

ExoFlare views the pilot as successful. The company will continue to invest in expanding its ExoFlare Transport offering and encourage broader use/adoption of its platform to protect and support the biosecurity needs of the wider red meat sector.

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1. Pilot

1.1.   Pilot participants

ExoFlare developed the Transport app in regular consultation with three livestock transporters, two in Victoria and one in Queensland, who expressed strong interest in digitising their paper consignment process. All three transporters carted cattle and sheep.

The app was used by a select set of beta users from the three pilot transporters whose feedback was incorporated into ExoFlare's app development process. These users were chosen for their technical aptitude and the types of deliveries being performed.

1.2.   Engagement

Fortnightly meetings and phone calls were scheduled with pilot participants to ensure that user feedback was collected and incorporated into the ExoFlare development sprint process promptly, iterating on user features to improve the app quickly and respond to users' feedback.

ExoFlare also sought user feedback from producers, livestock transporters, and other stakeholders at in-person events.

2. User Research Insights

ExoFlare research into the current experience across the whole supply chain revealed potential traceability gaps, biosecurity gaps, inefficiencies in the paper-based processes used in livestock transport, and a need for more transparency once animals leave a pickup location.

These gaps frequently related to "mandatory" fields not being populated in the paper forms or paperwork complexities arising from mixed loads, with multiple NVDs on one truck. Other gaps involved illegible handwriting, effectively making that data unusable.

These "missing" data elements could significantly complicate efforts to stop or slow down the spread of disease in the case of an Emergency Animal Disease (EAD) incursion.

2.1.   Traceability and biosecurity gaps in animal transport

> " Trucks are meant to be washed prior to arrival [but] when pressed for time, truckies running late, hard to say we can't load because the truck's dirty
>
> MID-SCALE PRODUCER, VIC

> " Quite common to have mixed loads, multiple NVDs on one truck. When we buy from saleyards, could be up to 10 NVDs/vendors cattle on one truck.
>
> LARGE-SCALE PROCESSOR, NATIONAL
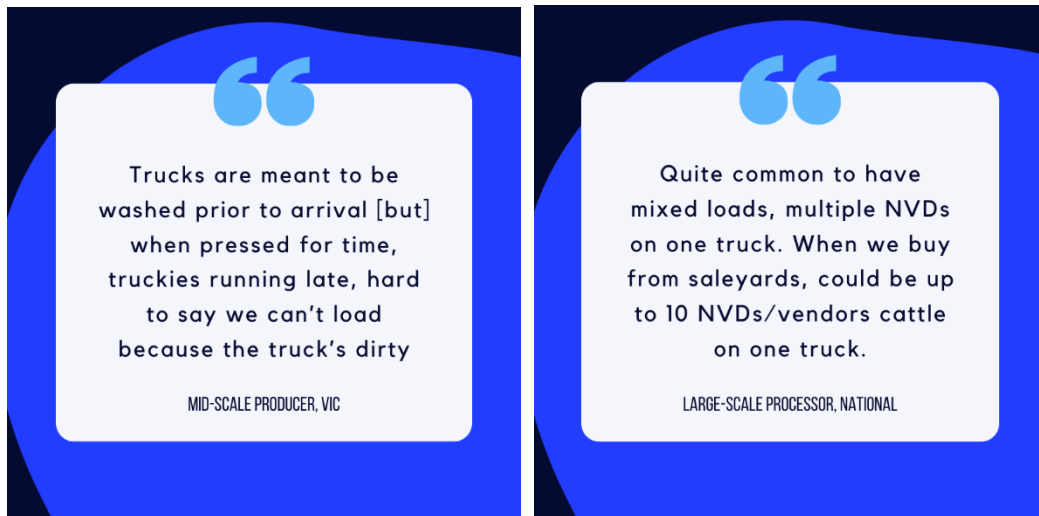
Due to long distances between locations and the popularity of saleyards for wider red meat livestock exchange, the nature of livestock transport in Australia presents potential risks for disease spread:

- For saleyards – a very common way to buy and sell red meat livestock in Australia – animals of different sources and different health statuses are often transported in the same vehicle and co-mingled in the same pen.
- Long-haul trips can require several days (e.g., livestock movements between the east and west coast or from south to north). Mobs of animals can be transported over five to six days, increasing the duration of direct contact and potential disease spread.
- Livestock transport can be broken down into multiple legs, involving different trailer combinations and cross-loading practices to minimise operational costs and comply with road regulations (e.g., a 9-deck job can be split into 2 legs: the first leg involving two road trains with 4.5 deck trailers, then cross loaded to the second leg using three B-doubles with 3 deck trailers).
- Good biosecurity practices by transporters, such as truck washing between loads, are appreciated but not strictly required by customers[1].
- The lack of truck wash facilities and appropriate infection protocols, the high and variable cost of truck washing[2], and cyclical water scarcity can make it difficult for transporters to wash adequately.

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[1] One interesting exception was a particular WA feedlot whose agreement with its transporter requires that all trucks are washed before every arrival. Both parties wanted this arrangement in place to proactively enhance biosecurity measures.

[2] Source: AVData (https://avdata.com.au/truckwash-charge-rates)

2.2. Inefficiencies of paper-based processes

Our discovery process revealed that transporters capture the most detailed and accurate livestock transportation information via their paper consignment notes or docket book, filled in by the driver at the time of animal loading and unloading.

The issue with these paper consignment notes is that they often contain incomplete or inaccurate data, and illegible handwriting, making it impossible to track and trace in a timely manner for an appropriate emergency animal disease (EAD) response.

Even during 'peacetime' of no disease incursion, getting consignment notes filled out correctly and returned quickly to the depot for invoicing customers creates tension between transporters' offices and their drivers.

2.3. Lack of visibility in animal transport across the supply chain

> "
> In terms of welfare, we care about animals being picked up on time (less stress in the yard) and not left waiting in the sun (stress, weight loss and injury).
>
> MID-SCALE PRODUCER, NSW

> "
> We don't have a real way to know or manage if a truck coming to pick up from another property carrying a problem, you just have to trust that they're doing the right thing
>
> MID-SCALE PRODUCER, NSW

Throughout interviews with producers and processors, ExoFlare uncovered issues created by the lack of end-to-end visibility in livestock transport:

- Truck arrival times are often unknown, making it harder to allocate staff time to load and unload or causing the potential of animal welfare issues and economic losses, like animals being at risk of dehydration and losing weight due to waiting for several hours in the heat.
- For producers sending their animals away, they do not have visibility on when the animals arrive at the destination or their condition on arrival.
- There is no consistent way to measure, audit and compare transporters' welfare and biosecurity practices, notwithstanding current minimum requirements.

Both producers and processors wish for greater transparency and visibility in animal transport.

3. Key Findings

This project surfaced substantive differences between the needs of livestock transportation in intensive industries (e.g., pork or chicken meat) and the wider red meat industry. ExoFlare successfully incorporated these sector-specific needs into its Transport product and piloted the sector-specific functionality within the wider red meat supply chain.

The project demonstrated significant potential to use data to create new operational efficiencies, increase traceability, and deliver animal welfare benefits across the supply chain compared to paper-based approaches.

4. Future research and recommendations

ExoFlare recommends that further work be undertaken to drive higher adoption of digital traceability and real-time data collection and management in the transport and wider red meat supply chain industries and use these insights to reduce biosecurity risk in the livestock transportation space.

ExoFlare recommends that Integrity Systems Company/Meat & Livestock Australia continues, completes, and deploys recent work to allow API-level integration between third-party platforms (e.g., ExoFlare and others) with the eNVD system to maximise the value delivered to wider red meat producers, transporters, and processors.

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ExoFlare views the pilot as successful. The company will continue to invest in expanding its ExoFlare Transport offering and encourage broader use/adoption of its platform to protect and support the biosecurity needs of the wider red meat sector.

ExoFlare thanks MLA for its continued support and leadership in strengthening the Australian red meat industry's biosecurity capabilities, resilience, and operational readiness.

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