

Traceability of Wool in Australia

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Final Report

Australian Wool Innovation and the Federation
of Australian Wool Organisations Inc

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Executive Summary

This project aimed to:

1. Investigate, describe and test the ability of the Australian wool industry to identify the location of wool from properties assumed to be affected by an outbreak of an Emergency Animal Disease (such as Foot and Mouth Disease) between farm gate and local processor or ship-side;
2. Determine the key weak-spots in this identification;
3. Develop Emergency Disease Management (EDM) tracing protocols for the industry to follow in the event of an outbreak to trace wool from farm gate to local processor or ship-side; and
4. Provide a plan for industry action that will include recommendations to implement these protocols.

This Final report provides the key findings from the project and recommendations for consideration. It draws on the reports from each of the previous three stages of the project, which are included as Appendices.

The key findings from the project were:

- ☒ Current wool industry recording and reporting systems are largely very good for traceability
- ☒ Wool from a single property goes in many directions after sale
- ☒ After most shearings there will be some wool held on farm that needs to be accounted for
- ☒ The Draft EDM Tracing Protocols worked well and with some minor modifications can be used by industry
- ☒ Data capture is important
- ☒ Wool tracing is human resource and skills intensive
- ☒ Broker, season, sale ID and lot number are key identifiers through the supply chain to trace wool
- ☒ There are unique, but not insurmountable issues for wool tracing, primarily for bulk-classed wool and test samples
- ☒ Post-sale batches or interlots can be readily traced, but removal of some bales will invalidate certificates
- ☒ Physically confirming the location of the bales is important

The report makes 16 recommendations for consideration by industry. It is noted that some of the recommendations will require considerable resources and investment to implement, which the industry may not be prepared to undertake, such as recommendations 2, 3, 8 and 9.

The recommendations for the industry to consider are:

1. The Australian wool industry, through the Federation of Australian Wool Organisations (FAWO), works with Animal Health Australia (AHA) to incorporate the EDM Tracing Protocols into the AUSVETPLAN Wool Enterprise Manual.
2. The Australian wool industry develops a computerised recording system within the next 12 months to be used to trace wool in the event of an outbreak of an Emergency Animal Disease.
3. In conjunction with recommendation 2 above, existing industry computer systems (such as the AWH system, Talman and so on) should be enhanced to enable data downloads to the proposed computerised recording system.
4. FAWO, in conjunction with State and Commonwealth authorities, should develop a communication and training / awareness plan to inform wool brokers, exporters, private treaty merchants, other wool handlers about the steps that will be implemented in the event of an EAD outbreak.
5. FAWO, in conjunction with State and Commonwealth authorities, should have an on-going program of regular simulation exercises to trace wool to maintain preparedness and capability.
6. FAWO, in consultation with AHA, should develop and have accredited, a decontamination protocol for use by infected premises (e.g. wool handlers, cartage companies, wool test houses and wool dumps) in the event of an outbreak of Foot and Mouth Disease (FMD).
7. FAWO should work with brokers, private treaty merchants and other wool handlers to ensure that adequate 'fully informed' human resources are available to be activated in the event of an EAD incident.
8. Australian wool producers and wool classers should ensure that the farm Property Identification Code (PIC) is recorded on classers' specifications (speci's). This information should then be recorded by wool handlers in their computer systems.
9. Australian wool producers and wool classers should ensure that the date of shearing and pressing is recorded on classers' speci's. This information should then be recorded by wool handlers in their computer systems.
10. In the event of an EAD outbreak, all bulk-class or rehandled wool in bins in any classing house, rehandle facility or dealer facility that has handled 'at risk' wool (including private sales) should be pressed up, the bales isolated and quarantined, and the facility decontaminated.
11. All wool handling facilities should have an EAD plan based on a FAWO-endorsed template.
12. Wool brokers and handlers should retain the showfloor 'tip-out' sheets for grab samples for six months.
13. Core waste from any wool handler which has handled 'at risk' wool should be pressed up, isolated and quarantined. Core machines and other handling equipment should be decontaminated.

14. In the event of an EAD outbreak, all samples in test houses that may have some 'at risk' wool should be pressed up, the bales isolated and quarantined. The facility should then be decontaminated.
15. All wool that has been sourced from abattoirs and live exporters which have processed or shipped sheep originating from properties in the Declared areas should be treated as 'at risk' and isolated and quarantined.
16. If any fleeces have been sent from properties in Declared areas for a fleece competition, all wool held by the competition organisers should be treated as 'at risk'. All fleeces in that competition should be isolated and quarantined.

Introduction

Through the Traceability of Wool project, Australian Wool Innovation (AWI) and the Federation of Australian Wool Organisations (FAWO) sought to have described the flows and traceability of wool in the Australian wool industry, and to have protocols developed that can be used to identify the location of wool from properties affected by an outbreak of an Emergency Animal Disease (EAD), such as Foot-and-Mouth Disease. The project also makes recommendations on what might be done to further prepare industry's capacity to trace and isolate wool from affected properties.

The first stage of the project followed on from the work of Dr Peter Morgan who prepared detailed flow charts of the movement of wool bales from the farm to scour, either in Australia or overseas¹. Stage 1 further described the systems used to track wool bales and samples through the supply chain by cartage contractors, brokers, private treaty merchants, other wool handlers, wool test houses, dumps, shippers, processors and others.

Using the information gathered and described in the first stage, Stage 2 involved development of draft Emergency Disease Management (EDM) wool tracing protocols (that is, a set of rules or procedures). These provide a consistent approach to the identification of bales, wool and samples at all stages through the wool supply pipeline to early stage processing in Australia or to export by ship. A Traceability Excel Workbook was developed to facilitate collection and cross-checking of the trace data. The draft protocols were checked by consulting with key industry people, including AWH Pty Ltd (AWH), brokers, private treaty merchants, contractors and Australian Wool Testing Authority (AWTA).

The third stage of the Traceability of Wool project involved three simulations where wool from a property in NSW, Victoria or WA assumed to have had an outbreak of an EAD (called properties in a Declared area) was traced from farm to ship, processor or current location. These simulations were designed to test the EDM Tracing Protocols and the Traceability Excel Workbook developed in Stage 2, and to confirm or otherwise the findings from Stage 1.

This report presents the findings and recommendations arising from all stages of the project.

Background

The wool industry is one of the major livestock industries in Australia, generating \$2.7 billion in export income in 2014/15. Almost all of Australian wool production is exported and the vast majority of that export is in greasy form (93% of Australia's exports in 2014/15 were greasy wool). The industry is therefore exposed to significant trade disruption in the event of an outbreak of an EAD. Furthermore, the global wool textile industry relies heavily on Australian wool, particularly of Merino wool. Australia accounts for around 55% of world production of 24.5 micron and finer and 85% of world production of superfine wool (18.5 micron and finer)². In total, Australia also accounts for

¹ Morgan Terrace and Poimena Analysis (2014). "The traceability of wool bales and samples". A report for Australian Wool Innovation and the Federation of Australian Wool Organisations. November 2014

² C Wilcox, pers comm (2016)

around 40% of the world trade of raw wool³ and for just under 50% of China's imports of raw and semi-processed wool⁴. This means that the global wool textile industry would be severely affected by a significant disruption to trade from Australia as a result of an EAD outbreak.

In recent years there has been considerable attention paid at an agriculture-wide level in preparing Australia for such an outbreak, with most of that focus on farm-level issues. FAWO has undertaken considerable work with the aim of ensuring that the Australian wool industry is prepared as best it can be in the event of an outbreak of an EAD. This includes the development of the Emergency Animal Disease Preparedness RD&E Strategy 2013-16.

One issue of concern in the event of an outbreak is the Australian wool industry's ability to trace and identify all wool that has originated from properties affected by an outbreak of an EAD, and thus be able to isolate and quarantine this wool. This will be important to help reassure Australia's export customers and help minimise disruption to industry and trade.

The Traceability of Wool project aimed to:

- Investigate and describe the ability of the Australian wool industry to identify the location of wool from properties affected by an outbreak of an EAD between farm gate and local processor or ship-side.
- Identify the 'weak spots' where wool from properties in Declared areas is not easily traced and identified.
- Develop EDM Tracing Protocols for the industry to follow in the event of an outbreak of an EAD to trace wool from properties in the Declared areas.
- Stress-test the EDM Tracing Protocols and the tracing systems in the Australian wool industry.
- Provide recommendations on actions the Australian wool industry can take to address the gaps in tracing 'at risk' wool⁵.

As noted in the introduction, this project was conducted in three stages. Reports for each stage were submitted to AWI and FAWO and are included as appendices to this Final report.

This Final report provides a summary of the key findings from the three previous stages of the project as well as recommendations for consideration on how the industry may better prepare itself for an EAD outbreak.

Key Findings

Stage 1 – Desk Review and Interviews

The Stage 1 report provided a review of existing systems used for the identification and tracing of wool and highlighted the likely issues involved in tracing of wool from infected premises (property or

³ International Wool Textile Organisation (2015), Market Information Report 2015.

⁴ China Wool Textile Association and China Customs

⁵ In the Stage 1 report we defined both 'Declared' wool and 'At risk' wool. Throughout this report we use the term 'At risk' to cover both instances as we expect there would be no difference in how each is managed.

properties). Its preparation involved reviewing a range of background documents and conducting 30 interviews with key industry personnel. The interviews confirmed many of the aspects of the traceability issues covered in the report by Morgan Terrace and Poimena Analysis⁶ and in the details set out in Appendices 2 and 3 of the AUSVETPLAN Wool Enterprise Manual⁷.

As a result of the review of background documents and interviews, not only was a comprehensive summary of wool flows developed, but a series of 'weak spot' issues were identified and documented for the traceability of wool from the shearing shed to ship-side or the local processor.

Importantly it was apparent from this review that the current wool industry procedures, record keeping and identification systems allows for the vast majority of wool within the industry to be readily traced were wool from Declared area premises (property or properties) be sold or sent for sale.

The 'weak spots' identified were:

- **Bulk Class:** Wools put through rehandle or bulk class operations run by private merchants, brokers and other handlers.
- **Dealers:** Wool handled by dealers (often single town operations handling small volumes of wool purchased in small quantities).
- **Hobby-farmers:** Wool from hobby farmers and 'private sales' will be difficult to trace.
- **Abattoirs / live exports:** Wool from abattoirs and live exporters will be almost impossible to trace back to the originating property from where the sheep came.
- **Coring:** Core waste – wool that has been ejected from the coring line which is captured and sold as a full bale during the year.
- **Shearers:** Wool from shearers – shearers who shear small numbers of sheep (mainly in peri-urban areas) are sometimes paid in wool. This will be difficult to trace.
- **Test samples:** Wool samples sent for testing, once no longer required, are pooled, baled and sold to processors or exporters.

The Stage 1 report noted that the key to successful identification and isolation of wool from, or contaminated by wool from, properties from Emergency Animal Disease Declared areas is the enactment of a 'trace forward'⁸ protocol. That is, it will be critical for producers from the properties from a Declared area to advise where they delivered their wool and how it was identified. For each successive step along the pipeline it will be crucial to identify where that wool, and any 'at risk' wool went and how to find it.

⁶ Morgan Terrace and Poimena Analysis (2014). "The traceability of wool bales and samples". A report for Australian Wool Innovation and the Federation of Australian Wool Organisations. November 2014

⁷ AUSVETPLAN (2015) Australian Veterinary Emergency Plan (AUSVETPLAN): Enterprise Manual. Wool industry. Version 3.0

⁸ While the basis of the protocols developed and simulations undertaken during this project were based on 'trace-forward' approaches, it should be noted that could be equally applied in a 'trace-back' system

The Stage 1 report specifically focussed on these ‘weak spots’ and proposed actions that should be taken in the event of an EAD outbreak and thus need inclusion in the EDM Tracing Protocols that were developed during Stage 2. On all occasions, where any wool could not be traced to a property of origin, or where wool may have come into contact with wool from a property in a Declared area then an ‘at risk’ descriptor applies⁹. The Stage 1 report is included as Appendix 1.

Stage 2 – Development of Draft Protocols and Traceability Excel Workbook

Based on the information gathered and described in Stage 1, draft EDM wool tracing protocols (that is, a set of rules or procedures) were developed. These established and described consistent approaches to the identification of bales, wool and samples across the various pathways by which bales, wool and samples move through the wool supply pipeline to early stage processing either locally or overseas. Based on the flowcharts prepared in a previous project¹⁰, it is known that there are around 12 different pathways for wool bales from grower to Australian or overseas scour and around five pathways for wool samples from grower to scour. The protocols prepared were developed to address these 17 or so pathways and covered approaches for:

- Producers
- Brokers, Private Treaty Merchants, Dealers
- Rehandlers
- Buyers / Exporters
- Processors
- Dumps and Container Packers
- Test Houses and samples
- Shearers
- Fleece competitions

To support the protocols and facilitate the conduct of trial simulations (see Stage 3 below), a comprehensive Traceability Excel Workbook was developed to ensure that data could be electronically compiled, transferred and stored, and that an auditable ‘paper-flow’ could be followed were that required.

The final draft version of the EDM Tracing Protocols (and Workbook) were constructed so that they could be trialled during the Stage 3 simulations, revised based on that experience and then used in the industry’s EAD preparedness documents and any subsequent trials. The final versions of the protocols are included as Appendix 2.

Stage 3 – Simulations

Stage 3 effectively ‘stress-tested’ the EDM Tracing Protocols developed in Stage 2 for actual supply pathways by tracing all wool from three properties as if they were in an EAD Declared area. These

⁹ As noted previously, in the Stage 1 report we defined both ‘Declared’ wool and ‘At risk’ wool. Throughout this report we use the term ‘At risk’ to cover both instances as we expect that there would be no difference in how each is managed.

¹⁰ Morgan Terrace and Poimena Analysis (2014). “The traceability of wool bales and samples”. A report for Australian Wool Innovation and the Federation of Australian Wool Organisations. November 2014.

simulations were also used to confirm or otherwise the findings from the review of existing systems for tracing wool in Australia (Stage 1), including the 'weak spots' identified in the review.

Three simulations were conducted in April to June – one in each of Victoria (wool delivered to Melbourne), NSW (wool delivered to Goulburn / Sydney) and WA (wool delivered to Perth). For each simulation, real properties were identified and data was gathered on actual wool flows from a recent shearing (about 6 weeks prior to the simulation taking place).

All three simulations were relatively straight-forward with wool offered via one or two brokers and sold either as farm-sourced sale lots or as interlots. At the time of tracing, no wool from these properties had been sold to a private treaty merchant or local dealer nor had any wool been sent through bulk-classing. To address this limitation, the project team conducted an additional 'bulk-class test' simulation in New South Wales with a classing house for wool from one property that went through bulk-classing.

While there were issues that arose in each simulation, as noted earlier in this report the simulations indicated that the Australian wool industry is well-placed to be able to trace wool from properties from Declared areas and to find and isolate this wool in the event of an EAD outbreak. The simulations confirmed that farm lines which are sold as sale lots are relatively easy to trace through to the current location, whether it is in the broker / handler's warehouse, at the dump, at the wharf, on a ship or with a local processor. Bulk-classed wool entering a rehandling / classing house provides a greater, but not insurmountable, challenge. The same is true for other parcels of wool, such as wool samples used in testing.

The key findings from the simulations were:

1. Current wool industry recording and reporting systems are largely very good for traceability

The Australian wool industry has very good computerised systems that can be used to trace farm lots and single farm bales from farm gate through to ship-side or processor door, backed up by a paper trail for some operations (such as the rehandle sections of the wool handling operation). These systems would require little or no adaptation to make them very effective to trace wool during an outbreak of an EAD.

Assuming appropriate levels of human resources and skills are made available to collect the required information (see point 6 below), the rapid identification of these farm lots and single farm bales will be possible. Other wool parcels do create some increased challenges as indicated below.

2. Wool from a single property goes in many directions

Each of the three simulations undertaken involved delivery of wool to just one or two brokers' stores and no private treaty or dealer locations, and thus could be considered as relatively straight forward from a traceability perspective. However, even after a fairly short period of time (a couple of weeks from delivery into store) the wool from each property could end up in a large number of locations.

3. After most shearings there will be some wool held on farm that needs to be accounted for

Based on the three simulations, there was an amount of wool held on farm in butts, bags and partial or full bales, from the recent shearing in question but also from previous shearings. This would be easily quarantined, but it will be important to ensure that properties are inspected thoroughly in the event of an outbreak.

4. Draft EDM Tracing Protocols worked well

The draft EDM tracing protocols that were developed in Stage 2 of the project worked well, but experience from the simulations pointed to the need for some relatively minor modifications. These have been included in the final version of the EDM Tracing Protocols (see Appendix 2)

5. Data capture is important

The Traceability Excel Workbook developed for the simulations was satisfactory but required modification for each simulation, notably during the first simulation. What was very evident was that the electronic capture of data in such a workbook was critically important to the efficient operation and recording of the simulations. Tracing of wool, especially given wool from even one property ends up in a large range of locations, also entails a large amount of data collection to trace the flow of that wool. It necessitates a significant amount of human resource to gather and enter the data.

The approach adopted in the simulations of using a single workbook per property will prove to be cumbersome and difficult to use in the event of an outbreak affecting a large number of properties. A large number of these Workbooks would be required, one for each property. As well, within each farm Workbook there would be individual spreadsheets for each broker and wool handler, as well as each buyer/destination of the wool from that property. These brokers and buyers will be duplicated in multiple property Workbooks.

The ability to download data from the existing computer systems and from on-farm electronic collections such as the Australian Wool Exchange's WoolClip software (which allows the capture of in-shed activity and creation of an electronic classer specification) would be an advantage. The use of a standardised format which could be used in tracing wool during an EAD outbreak would save time and human resource requirements, as well as greatly reducing the chance of transcription errors.

6. Wool tracing is human resource and skills intensive

Tracing of wool requires significant human resource, in some cases with specific skills, even when tracing wool from just one property. The three simulations each took approximately three to four person-days to conduct (travel time to properties excluded) - gathering the information from each property, visiting the brokers and wool handlers, contacting or visiting the dumps and buyers, contacting or visiting the test laboratories and so on. In a real outbreak, there would be an enormous call on resources to gather the required information and isolate the wool from the properties in Declared areas. It also requires access to staff in wool handlers,

brokers, processors and exporters who have appropriate knowledge and skills with their existing computer systems.

It is noted, however, that the human resources required to collect the information should be available in the event of an outbreak of an Emergency Animal Disease largely because people, such as staff from wool broking and wool handling companies, will be unable to conduct normal commercial operations for a period of time.

It will also be important to have access to staff in each broker, private merchant, wool handler, buyer / exporter and processor business who understand and are well-versed in the operation of their business's computer systems. Otherwise, the time it takes to identify successfully the location of each parcel of wool would be drawn-out.

7. Broker, season, sale ID and lot number are key identifiers

While the folio or reference number for each sale lot was needed for tracing within the broker / handler's system, this was less useful when contacting the buyers. The key identifiers requested by the buyers (who all used the Talman¹¹ system) were the broker, the season, the sale ID and the broker's lot number. This data should be gathered and recorded, as well as the broker / wool handler folio, weight note or reference number.

8. There are unique, but not insurmountable issues for wool tracing, primarily for bulk-classed wool and test samples

Farm lines which are sold as sale lots are easy to trace to their current location. As expected, wool that entered some form of rehandling did provide some greater tracing challenges, but these were not insurmountable. Key examples were:

- Bulk-class wool entering rehandling
- Grab samples entering rehandling
- Pre or post sale blended wool
- Core samples, especially excess greasy wool removed from keeper samples
- Staple tufts or broken staples after testing
- Mid-side samples sent to fleece testing laboratories
- Wool from abattoirs, live-export facilities or 'sheep traders'

Wool going through bulk-classing in rehandling facilities is particularly important, accounting for around 15% of wool tested by AWTA each year.

While not every component listed above was 'tested' during the simulations, most were. Some key findings were:

- The identification of the bulk-class bins (and therefore the bales) into which grab samples from the 'at risk' farm lots were placed can be difficult and slow, sometimes due to the need to contact the rehandle classer or consult paper based records.

¹¹ Talman is a software and integration company that provides IT solutions for much of the Australian wool industry, especially wool brokers and buyers

- Once bulk-class wool from a property from an EAD Declared area enters the rehandling section of a wool handler or a classing house, it could go into a number of known and recorded bulk-class bins. While the bins will be known, such 'at risk' wool may also have come into contact with other wool held in the rehandling area. It may be almost impossible to isolate 'at risk' wool from one source, even though the bins may be known, from all other wool in the rehandling area due to the potential for cross-contamination. The whole reclassing area may need to be quarantined, the wool baled up and the area decontaminated. This would be at the direction of the State authorities.
- Once 'at risk' bulk-classed wool bales are sold, their grab samples would go back into the rehandling area and may or may not go back into the same bins from which the original bales were sourced. 'At risk' grab samples from show-floors may also not be allocated to the bin as noted on the show-floor tip-out sheets. Special processes may need to be put in place to cover such instances.

The results of the simulations suggest that while traceability is considerably more difficult for these wools than sale lots of farm bales, record keeping for a range of purposes (including financial management) would enable such wool to be fairly successfully traced. What is also evident is that the blending of such wool with other non-affected wool would mean that significantly more wool would need to be quarantined to ensure that the 'at risk' wool was isolated. As a general rule, where overall ease and confidence in traceability is lower (e.g. rehandled wool), the greater the amount of wool that may need to be quarantined and vice-versa.

9. Post-sale batches or interlots can be readily traced, but removal of some bales will invalidate certificates

Tracing wool post-sale, when wool has been aggregated into the assembly area awaiting despatch to another location (e.g. dump), the bales from a property from a Declared area in the delivery batch can be easily identified and removed. However, such removal of some bales would render the combined test certificate invalid and a reissued combination certificate (minus the quarantined bales) may not match the specification for that delivery batch.

Similarly, for interlots that contain one or more bales from a property from a Declared area, and some from Outside Area properties, the 'at risk' bales can be identified and quarantined. However, such removal would render the test certificate for the interlot invalid.

Furthermore, Government quarantine rules may require that all bales in post-sale batches or in interlots that contain 'at risk' bales be quarantined.

10. Physically confirming the location of the bales is important

The simulation showed that while the use of broker, handler or buyer computer systems and databases is exceptionally helpful, sometimes there is a lag between wool being moved and the database being updated. Consequently, and especially in a 'real EAD outbreak', it will be important to not rely solely on these existing computer systems and databases to trace wool, but also to undertake a physical inspection to validate the location of the wool.

Recommendations

The following recommendations are designed to help ensure that the industry can more efficiently and effectively trace wool from properties from Declared areas, isolating and quarantining that wool quickly so as to help international trade resume. This resumption will, of course, be a decision of the Australian Government and the Governments of the export destination countries.

These are recommendations to the wool industry, but it must be stressed that in an EAD outbreak, management is a Commonwealth and State responsibility. Therefore, the processes suggested by these recommendations are subordinate to Government requirements. These recommendations should be consistent with and where appropriate, incorporated into the AUSVETPLAN Wool Enterprise Manual and other AUSVETPLAN manuals.

The recommendations from the project are separated into five categories: industry-wide; farm; wool handlers; test houses; and other.

Industry-wide

1. **The Australian wool industry, through the Federation of Australian Wool Organisations (FAWO), works with Animal Health Australia to incorporate the Emergency Disease Management (EDM) Tracing Protocols into the AUSVETPLAN Wool Enterprise Manual.**

It is important that, for the EDM Tracing Protocols to be used in the event of an outbreak of an Emergency Animal Disease, they are documented in the Animal Health Australia's AUSVETPLAN Wool Enterprise Manual. This will ensure that they are readily accessible for use by anybody who is implementing the AUSVETPLAN, in particular those who have not been involved in the development of the Protocols.

2. **The Australian wool industry develops a computerised recording system within the next 12 months to be used to trace wool in the event of an outbreak of an Emergency Animal Disease.**

A Traceability Excel Workbook was developed by the project team to record the necessary information from the simulations for each property and the various pathways by which the wool from that property travels to ship-side or to local processor door. As noted in the Key Findings, the approach of using a single workbook per property will prove to be cumbersome and difficult to use in the event of an EAD outbreak affecting a large number of properties. A large number of these Workbooks would be required, one for each farm. As well, within each farm property Workbook there would be individual worksheets for each broker and wool handler, as well as each buyer/destination of the wool from that farm. These broker, wool handler and buyer worksheets will appear in multiple farm property Workbooks.

It is recommended that a computerised recording and retrieval system be developed as it would best handle the large amount of data that would arise from an actual outbreak and should allow simultaneous use by multiple users. A detailed specification of the proposed computer database system would need to be developed by suitably qualified IT specialists who would be guided by the features developed in the Traceability Excel Workbook.

This computerised recording system could take one of two forms:

- a. It could be a turn-key system held and maintained (where necessary) by FAWO to be activated in the event of an EAD outbreak. That is, it could be developed and be accessible for use in the event of an EAD outbreak.
- b. Alternatively, over time and if there are sufficient commercial imperatives to support it, such a system could be a “live” national recording system that captures wool transactions and transfers via continuous access to existing industry computer systems. It is recognised that this option should most likely only be considered with further experience obtained in relation to wool traceability in the event of an EAD outbreak. It is also recognised that this would come at a cost and that developing and implementing such a system would be a significant and perhaps insurmountable challenge because of the nature of the wool industry along with issues of competition, privacy and commercial sensitivity of the data that would be pooled.

This is a decision which needs to be discussed and agreed by the Australian wool industry, with consideration of issues of confidentiality, resources (both establishment and on-going), which organisation would be responsible for a “live” system and the practicality of each option.

It is also important that State and Commonwealth authorities are consulted about such a computerised recording system so that their requirements (and those of our trading partners) are taken into consideration.

- 3. In conjunction with recommendation 2 above, existing industry computer systems (such as the AWH system, Talman and so on) should be enhanced to enable data downloads to the proposed computerised recording system.**

FAWO should hold a meeting with providers of computing systems to develop a plan to modify the existing computer systems to enable data on the location of ‘at risk’ wool to be simply downloaded in a standardised format so it is suitable for import into the proposed database system, or other software (e.g. Microsoft Excel). This meeting is best managed through the Wool Industry EDP Users Group (WIEDPUG).

- 4. FAWO, in conjunction with State and Commonwealth authorities, should develop a communication and training / awareness plan to inform wool brokers, exporters, private treaty merchants, other wool handlers about the steps that will be implemented in the event of an EAD outbreak.**

From experience gained with the simulation exercises, industry participants are interested and concerned about the issue, but in general know very little about an EAD such as Foot and Mouth Disease and, more particularly, what would happen in the event of an outbreak. FAWO, as the peak industry body, should develop and implement a communication program to inform all within the wool supply chain in Australia about EADs, who are the responsible authorities in the event of an outbreak and what would happen in the event of an outbreak, especially in relation to wool. A training program should be developed and presented at regular intervals to

maintain awareness and preparedness, particularly in light of staff turnover. (This recommendation would link with Recommendation 5 below.)

- 5. FAWO, in conjunction with State and Commonwealth authorities, should have an on-going program of regular simulation exercises to trace wool to maintain preparedness and capability.**

The simulation exercises used for this project have been useful for, among other things, stress-testing existing systems and creating awareness and capacity within industry. Another 'trace-forward' simulation exercise should be conducted once the proposed computerised recording system is developed to stress-test that new system and action taken to address any issues.

We also recommend that FAWO conduct 'trace-forward' simulation exercises at regular intervals, perhaps every two to three years, as part of the industry communication and training / awareness program (Recommendation 4). This would have three benefits. First, it would enable stress-testing of the industry's capabilities to trace wool. Second, it provides a useful communication and education method for industry. Third, it ensures continuity of knowledge within the industry even as key industry personnel change.

- 6. FAWO, in consultation with Animal Health Australia (AHA), should develop and have accredited, a decontamination protocol for use by infected premises (e.g. wool handlers, cartage companies, wool test houses and wool dumps) in the event of an outbreak of Foot and Mouth Disease (FMD).**

Were an FMD¹² outbreak to occur, control and management would be the responsibility of State and Commonwealth authorities. To support this process and to enable the wool industry to resume operations as quickly as possible, industry should prepare and seek accreditation for a decontamination protocol for FMD. This protocol should be included in the AUSVETPLAN Wool Enterprise Manual¹³ and might include isolating all 'at risk' wool and decontaminating the equipment and premises of wool handlers and test houses so as to ensure that they are no longer at risk of transferring the disease.

- 7. FAWO should work with brokers, private treaty merchants and other wool handlers to ensure that adequate 'fully informed' human resources are available to be activated in the event of an EAD incident.**

The collection and compilation of information to trace wool from properties affected by an EAD outbreak will require an enormous call on human resource, in some cases with specific skills. This could come from staff from wool broking companies, private treaty merchants and wool

¹² FMD is specifically included as it is considered to be the most likely EAD to threaten the Australian sheep and wool industries.

¹³ In reviewing the Wool Enterprise Manual and other AUSVETPLAN documents, consideration should be given to ensuring consistent terminology and protocols throughout, such as whether wool 'at risk' from FMD should be 'decontaminated' or 'destroyed'.

handling companies. In the early stages of an EAD, these staff will be unable to conduct normal commercial operations.

We recommend that FAWO work with brokers, private treaty merchants and other wool handlers to develop an emergency resource plan for each state which ensures suitable staff resources with appropriate skills can be called upon to gather the necessary information, provide access to computer systems and isolate wool from properties from Declared areas. This should include the identification of Specialist Advice Officers to support and work with State and Commonwealth authorities. These resources would be made available to the State and Commonwealth Government authorities and be under their direction.

Farm

- 8. Australian wool producers and wool classers should ensure that the farm Property Identification Code (PIC) is recorded on classers' specifications (speci's). This information should then be recorded by wool handlers in their computer systems.**

While farm brand is a key identifier within the wool trading industry, the Property Identification Code (PIC) would also be important, particularly when working with the state Department of Agriculture (whose Chief Veterinary Officer has authority in the event of an outbreak of an EAD) to identify premises affected by an outbreak. While PICs are on the standard classer specification endorsed by the Australian Wool Exchange (AWEX), it will be important for the PICs to be located on all broker versions of the specification and that classers are encouraged by AWEX, brokers and merchants to always fill it in. AWEX, through its classer training programs, should encourage classers to record the PIC on the classer speci emphasising its importance in tracing the property of origin of wool.

It is also important that this information is recorded by wool handlers in their computer systems. While it is recognised that recording the PIC is an additional data-entry task, it would only need to be done once for each client as PICs remain constant (unless the client changes properties or wool handler).

- 9. Australian wool producers and wool classers should ensure that the date of shearing and pressing is recorded on classers' speci's. This information should then be recorded by wool handlers in their computer systems.**

Given that EADs become inactive over time, we consider that it would be useful to record the date of shearing/pressing in the IT systems of brokers or their wool handling companies. This would be taken from the classers' speci's, and could provide additional guidance on whether or not the contents of the bales remain 'at risk'. It is recognised that such an approach would come at a cost in relation to data entry and resources¹⁴.

¹⁴ Unlike the PIC inclusion mentioned in Recommendation 8, date of shearing and pressing would need to be included for each delivery as it would vary year to year.

Wool-handler

- 10. In the event of an EAD outbreak, all bulk-class or rehandled wool in bins in any classing house, rehandle facility or dealer facility that has handled 'at risk' wool (including private sales) should be pressed up, the bales isolated and quarantined, and the facility decontaminated.¹⁵**

So that classing houses or dealers which have handled 'at risk' wool (including private sales) can resume business quickly, we recommend that all wool held by that establishment be pressed up and the bales isolated and quarantined until deemed to be no longer 'at risk'. Once the wool has been pressed up, the bins or blending area should be decontaminated in accordance with official procedures.

- 11. All wool handling facilities should have an EAD plan based on a FAWO-endorsed template.**

We recommend that all warehouses, classing houses, rehandle facilities and dealers be encouraged to develop a plan to be implemented in the event of an EAD declaration. This plan could be based on a FAWO-endorsed template, and should include how 'at risk' wool will be identified, found and isolated, reported and how the premises are to be decontaminated.

- 12. Wool brokers and handlers should retain the showfloor 'tip-out' sheets for grab samples for six months.**

All wool brokers and handlers should retain for six months the paper copies of the 'tip-out' sheets for grab samples so as to be able to identify the rehandle bins into which grab samples from 'at risk' wool have been placed after the original lots have been sold.

- 13. Core waste from any wool handler which has handled 'at risk' wool should be pressed up, isolated and quarantined. Core machines and other handling equipment should be decontaminated.¹⁵**

All core waste which may contain 'at risk' wool should be identified, isolated and quarantined.

Test houses

- 14. In the event of an EAD outbreak, all samples in test houses that may have some 'at risk' wool should be pressed up, the bales isolated and quarantined. The facility should then be decontaminated.¹⁵**

Excess wool from keeper samples and staple tufts from properties from Declared areas are readily traceable within test houses but are likely to be amalgamated with other wool relatively quickly. In such circumstances all blended wool should be identified, isolated and quarantined. The facility should then be decontaminated in accordance with official procedures.

¹⁵ As noted in the preamble, the State Government via the Chief Veterinary Officer (CVO) will have control over the management of infected premises.

Others

- 15. All wool that has been sourced from abattoirs and live exporters which have processed or shipped sheep originating from properties in the Declared areas should be treated as 'at risk' and isolated and quarantined.¹⁵**

With respect to abattoirs and live export facilities, wool sourced from animals originating from properties in a Declared area is likely to be blended with wool from other properties and would be very difficult to isolate. All such wool should be identified, isolated and quarantined.

- 16. If any fleeces have been sent from properties in Declared areas for a fleece competition, all wool held by the competition organisers should be treated as 'at risk'. All fleeces in that competition should be isolated and quarantined.¹⁵**

If any wool from a property in a Declared area went to a fleece competition and may have had contact with other fleeces, then all fleeces entered in the competition should be considered 'at risk', identified, isolated and quarantined.

Glossary

'At risk' wool, farm lots and bales:

Wool (separate, in a bale or in farm lots) which has been sourced from premises (properties) that are in the officially designated Declared area.¹⁶

Bulk-classing:

This involves all operations where wool is removed from farm bales and mixed with wool from other bales / sources. This includes traditional bulk class operations (breaking open bales containing a mix of wool types typically separated by a divider (e.g. newspaper) and sorting into bins of similar types), but also managing excess wool in over-weight bales, under-weight bales, grab samples, etc.

Classer's Specification or Speci:

The Classer's Specification, colloquially known as the 'speci' is a series of documents filled in by the wool classer during shearing. It lists each 'classed line' of wool and the bale numbers of each bale allocated to each line. A copy is kept by the farm owner or manager, and another copy is sent to the wool selling agent to assist them in preparing the wool for sale.

Core sample:

A sample of wool taken from wool bales by a hydraulically powered core tube. Core tubes are ⅞ inch in diameter. At least 12 or 20 core samples are taken from each sale lot, depending on the number of bales in the lot. The individual cores samples are amalgamated to form a composite sample for testing for yield, vegetable matter content and fibre diameter.

Core waste:

Wool that has been ejected from the coring line which is captured and sold as a full bale during the year.

Dump:

A facility where wool bales are dumped, packed into containers for shipping and delivered to the port. Dumping is The hydraulic compression of wool bales to create smaller units before shipping. Wool bales are most commonly dumped in units of two or three bales that are held in place by steel bands.

Grab sample:

A sample of full-length greasy wool drawn from wool bales by a hydraulically powered set of jaws. Grab samples vary in weight, but average about 150–200 g. Individual grab samples are amalgamated to form the display sample for a sale lot. At least 12 or 20 grab samples are taken from each sale lot, depending on the number of bales in the lot.

Interlot:

A group of bales of similar commercial properties from different farms that form a sale lot. It may also include bales of bulk-classed wool. An interlot differs from a bulk-classed sale lot in that the wool bales are grouped together, rather than individual fleeces.

Rehandle:

Rehandling includes blending, bulk-classed wool and interlots.

¹⁶ In the Stage 1 report we defined both 'Declared' wool and 'At risk' wool. Throughout this report we use the term 'At risk' to cover both instances as we expect there would be no difference in how each is managed

'Trace back':

Where wool is traced back from wool brokers or other wool handlers to properties in a Declared area from where it was delivered. It would also then need to be traced forward from those wool handlers to find the existing location of the wool.

'Trace forward':

Where wool is traced forward from those properties in a Declared area to where it was delivered and then for each successive step along the pipeline identify where that wool and any wool that could potentially be 'at risk' went and how to identify and find it.

AUSVETPLAN definitions:

Declared area:

A defined tract of land that is subjected to disease control restrictions under emergency animal disease legislation. There are two types of Declared areas: restricted area and control area.

Restricted Area:

A relatively small legally Declared area around infected premises and dangerous contact premises that is subject to disease controls, including intense surveillance and movement controls.

Control area:

A legally Declared area where the disease controls, including surveillance and movement controls, applied are of lesser intensity than those in a restricted area (the limits of a control area and the conditions applying to it can be varied during an incident according to need).

Outside Area (OA):

A property that is known and is not on the 'Declared property' list.

Dangerous contact premises:

A premises, apart from an abattoir, knackery or milk processing plant (or other such facility) that, after investigation and based on a risk assessment, is considered to contain a susceptible animal(s) not showing clinical signs, but considered highly likely to contain an infected animal(s) and/or contaminated animal products, wastes or things that present an unacceptable risk to the response if the risk is not addressed, and that therefore requires action to address the risk

Infected premises:

A defined area (which may be all or part of a property) on which animals meeting the case definition are or were present, or the causative agent of the emergency animal disease is present, or there is a reasonable suspicion that either is present, and that the relevant chief veterinary officer or their delegate has Declared to be an infected premises.

At-risk premises:

A premises in a restricted area that contains a live susceptible animal(s) but is not considered at the time of classification to be an infected premises, dangerous contact premises, dangerous contact processing facility, suspect premises or trace premises.

List of Abbreviations

AHA	Animal Health Australia
AWEX	Australian Wool Exchange
AWH	Australian Wool Handlers Pty. Ltd.
AWI	Australian Wool Innovation
AWTA	Australian Wool Testing Authority
CVO	Chief Veterinary Officer
EAD	Emergency Animal Disease
EDM	Emergency Disease Management
FAWO	Federation of Australian Wool Organisations
FMD	Foot and Mouth Disease
PIC	Property Identification Code
WIEDPUG	Wool Industry EDP Users Group

Appendices

Appendix 1.

The following document is provided as an electronic attachment.

Report from Stage 1 of the Project – Desktop Review and Interviews

Appendix 2.

The following document is provided as an electronic attachment.

Final Emergency Disease Management Tracing Protocols.

Appendix 3.

The following document is provided as an electronic attachment.

Report from Stage 3 of the Project - Simulations.