final report

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Animal Health and Disease Feedback System

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Abstract

Livestock Data Link (LDL) is an initiative of Meat & Livestock Australia (MLA) that aims to enhance the exchange and utilisation of carcase performance information by businesses within the red meat industry. LDL enables supply chain participants to analyse carcase performance in terms of compliance to market specifications, with performance outcomes linked to a library of solutions on how to address non-compliant issues on farm.

The development of an animal health and disease feedback component of Livestock Data Link (LDL) will further enhance the value of this tool, in particularly for sheep and lamb producers. An animal health and disease 'Solutions to Feedback' framework was developed that included the menu structure, the high level summary and the library content. Recommendations were provided by the project team on the type of information to be included in the producer reports and the optimum presentation and layout required to support producer useability. In addition, the comments and feedback from the producer workshop have been collated and recommendations have been provided on the improvements that can be made to the reporting interface and library of solutions for the animal health and disease component.

Executive Summary

Livestock Data Link (LDL) is an initiative of Meat Livestock Australia (MLA) that aims to enhance the exchange and utilisation of carcase performance information by businesses within the red meat industry. The carcase feedback component of LDL that enables supply chain participants to analyse carcase performance in terms of compliance to market specifications, with performance outcomes linked to a library of solutions on how to address non-compliant issues on farm, is well developed.

The purpose of this project was to support the development of the animal health and disease feedback component of LDL, which will integrate animal health and disease data with carcase performance information.

Solutions to feedback framework

For the proof of concept, six animal health and disease conditions were identified, which were; sheep measles, cheesy gland, hydatids, liver fluke, OJD and grass seeds.. Based on these six conditions, a recommended menu structure was developed by the project team following consultation with MLA, and based on their understanding of the existing menu structure for the carcase 'Solutions to Feedback'. In addition, a high level summary and associated library of resources were provided for each of the six animal health and disease conditions.

Recommendations for improvements to the format and content as requested by MLA were provided, and many of these were incorporated into the final proof of concept that was trialled with producers.

Animal health and disease reporting interface

A recommended reporting interface format was developed, incorporating the list of animal health conditions supplied by MLA. Recommendations and qualifications were made in relation to seven conditions on this list, along with two conditions that were not on the list.

The suggested format for the reporting interface included columns for number of animals condemned and percentage requiring heavy trim, and the pros and cons for including this information.

Producer Group Pilot

A workshop was conducted with a group of leading sheep producers to evaluate the animal health and disease interface and library of solutions.

Some of the key findings from this process include:

- Strong support for the inclusion of information relating to condemnations and heavily trimmed carcases in the reporting interface.
- A strong desire to have information incorporated into the feedback library on the costs of different conditions. This may include some analysis as to the threshold prevalence of the condition, where there is an economic benefit to treat or address the issue. It may also include guidelines as to the level of incidence of a condition or disease that is acceptable and what level should trigger a response by the producer.

- Producers would prefer photos in the solutions to feedback information, along with limited comments on regional occurrence of the condition and just one key fact sheet link.
- Producers would like to have the capacity to benchmark their condition reports over time and against their region, State and nationally.

Contents

Background

Livestock Data Link (LDL) is a new initiative of Meat & Livestock Australia (MLA) that aims to enhance the exchange and utilisation of carcase performance information by businesses within the red meat industry. LDL is a web-based application that links slaughter data from the National Livestock Identification System (NLIS) and Meat Standards Australia (MSA) databases with analytical tools, benchmarking reports and Solutions to Feedback.

LDL enables supply chain participants to analyse carcase performance in terms of compliance to market specifications, with performance outcomes linked to a library of solutions on how to address non-compliant issues on farm.

The development of an animal health and disease feedback component of LDL will further enhance the value of LDL as it will provide supply chain participants with the information to manage disease to reduce lost carcase value.

This project was part of an operational proof of concept pilot to demonstrate the feasibility of providing animal health and disease feedback to producers in a consistent and user friendly manner, to encourage improved adoption and practice change. For the proof of concept pilot, Animal Health Australia's (AHA) National Sheep Health Monitoring Program (NSHMP) data was integrated into LDL.

The aim of this project was to support the development of the animal health and disease feedback component of LDL, which will integrate animal health and disease data with carcase performance information. The project developed the animal health and disease 'Solutions to Feedback' framework, and provided technical advice on the health and disease interface for LDL. The interface for animal health and disease feedback was piloted and evaluated with a group of producers.

Objective 1: Animal health and disease 'Solutions to Feedback' framework

The first objective of the project was the development of the framework for the 'Solutions to Feedback' library to support the integration of animal health and disease data. This involved:

1. Outlining the 'Solutions to Feedback' menu structure for the animal health and disease library.

A recommended menu structure was developed by the project team following consultation with MLA, and based on their understanding of the existing menu structure within the Solutions to Feedback and their understanding of how primary producers might access information on-line. The suggested menu structure is outlined in Figure 1 (page 4). An important consideration is to ensure that producers don't have to go through a lot of different pages to access the detail they require.

2. Developing the high level summary that will be presented on each solution to address the non-compliant issue on farm and the collation and preparation of content for the 'Solutions to Feedback' library to support the LDL analytical tool

The animal health and disease conditions selected for the proof of concept were based on the conditions that were reported in the NSHMP. Six conditions were identifed by MLA (in consultation with AHA) for the proof of concept, with a high level summary and associated library resources provided for each condition. The six conditions were:

- Sheep measles
- Cheesy gland
- Hydatids
- Liver fluke
- Ovine Johne's Disease (OJD)
- Grass seeds

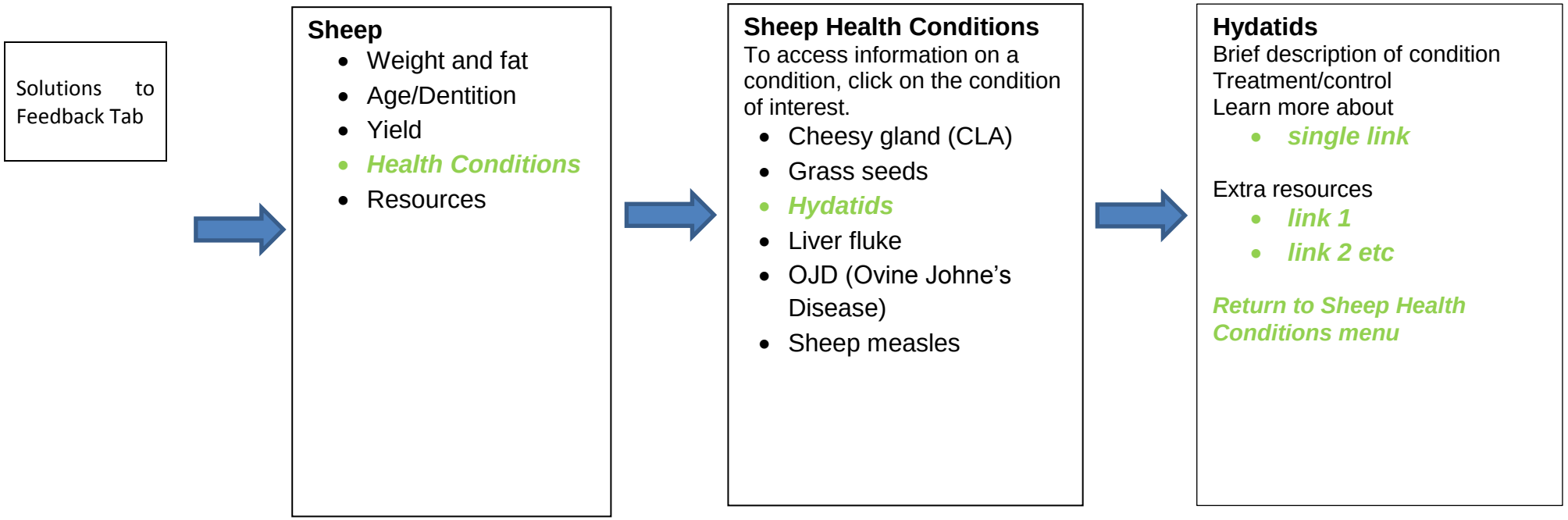
The contents and format of the high level summaries were developed following discussion with MLA, paying attention to their requirements. However, the project team provided the following comments for consideration:

- the inclusion of the geographical occurrence information on the high level summary of each condition, whilst important from an industry perspective, is not necessarily information that is of high importance for a producer. We would suggest that this detail may not be required.
- the home page for a condition should contain some more basic information on the condition, such as information on treatment and prevention.
- the high level summary provided lists resources available through the feedback library by State. However, it may be more producer friendly to identify one best reference and then list the others as "extra resources". However, this does have the potential to get some State jurisdictions offside.

In addition, the project team suggested that the inclusion of OJD in the list of conditions reported through LDL needs to be considered carefully. As OJD sampling would not be occurring in every plant, or a plant may not be part of the NSHMP and hence does not have funding for histopathology, we would suggest that suspect OJD be reported as "gut lesions" and the onus placed on the producer to follow up with their DPI or vet.

OJD histopathology would only be performed in abattoirs that are part of the NSHMP on shifts that are monitored. Confirmation of OJD through histological examination of lesions found at slaughter would normally require approximately two weeks turn around time. If the ultimate intent is to have health information available to producers soon after their animals have been slaughtered, this will prove problematic for OJD.

Fig 1. <u>Solution to Feedback menu structure</u>



Objective 2: Animal health and disease reporting interface

The second objective was to provide input into the design of the animal health and disease reporting interface that will be incorporated into LDL to provide feedback to producers on carcases that are not complying. This involved providing technical advice on the type of information to be included in producer reports and the optimum presentation and layout to support producer usability of the feedback.

The suggested format for the reporting interface that was provided is shown in Figure 2. This was arrived at following consultation with MLA and the project team. The list of conditions to be included was supplied by MLA, following consultation with AHA as the reporting interface was based on the NSHMP data. There are some conditions that appear on this list, and others that are not listed, that we recommend further discussion on, including:

- **Arthritis/polyarthritis** – should be considered for inclusion
- **Cancer** – there is a need to consider whether this is important to report as a percentage of the line, as it will very rarely be a flock condition. But if it is a condemnation reason, then it needs to be recorded as producers will want to know reasons for condemnation
- **Lungworm** – may not be appropriate - requires further discussion as there may be little value in reporting something that producers are limited in being able to do anything about
- **OJD** – this has been discussed elsewhere
- **Pleurisy/pneumonia** – these conditions should be split as pleurisy often requires a lot of trimming of the carcase, whereas pneumonia requires condemnation of lungs only.
- **Rib fractures** – should be considered for inclusion.
- **Tapeworm** - Is there another tapeworm of concern other than hydatids, bladder worm & sheep measles?
- **Vaccination lesions** – probably needs to be reported as general vaccine lesions, as it is not possible to differentiate post-mortem. Could report all vaccine lesions with the qualifier that the producer should be aware that if they are vaccinating with Gudair it is not uncommon for a reaction to occur.
- **Whipworm** - not sure why this would be on the list as opposed to other intestinal parasites.

There needs to be a flag on the summary page (carcase analysis page) that highlights to a producer that they should go and look at the health conditions status tab. For example, “Four different health conditions were identified in this lot. For full details of sheep health conditions identified and condemn and trim reasons, select the Animal Health tab”.

Producers really want to know about is what is costing them money. However, there is the bigger picture to consider of improving producer awareness of conditions that are a potential human health issue and conditions that are a cost to the processor but not necessarily a direct cost to the producer.

The suggested format for the reporting interface includes columns for number of animals condemned and percentage requiring heavy trim. Condemnations should be relatively straight forward to include because this is already reported on the Carcase Analysis tab. Linking that data to the animal health report will show a producer why animals have been condemned.

The inclusion of a column for heavy trim may be more problematic. At the moment, a producer can see what proportion of animals in a lot did not make the target carcase weight range. However, they need to know if animals are being significantly trimmed resulting in some carcases being too light to meet the target specifications. A definition of heavy trim would be required, and this could be included on the report in a legend. With the work that has been happening at a national level looking at grass seeds, the processors arrived at the definition of when carcases would be penalised for having seed as “anything that causes disruption on the slaughter floor through increased labour requirements, slowing of the processing chain or movement of the carcases to the retain rail”.

Whether it is going to be realistic to collect this information on the slaughter floor requires discussion. It could be that if a line comes through where it is apparent that significant numbers will require heavy trimming, then the Quality Assurance person is called in and it becomes their responsibility to see that the issue is recorded properly.

Our understanding is that when animal health issues data is collected on the slaughter floor, it is reported as a percentage of the line to the closest 5%. To report occurrences as actual number of head implies a greater level of accuracy with the reporting than actually occurs and so we would recommend either only reporting the percentage or making it clear that the instances report is only approximate. This is reflected in the suggested reporting interface layout.

When animals are condemned at slaughter, it can often be because of a health condition that is not generally recorded, such as jaundice or emaciation. Consideration could be given to the potential to ultimately incorporating this information in the report, perhaps through a hot link on the condemn number, which would remove the need to have this as a separate column on the main report.

Specific further comments relating specifically to the draft reporting interface supplied are:

- “Total Health Instances” is probably not necessary
- Why are some conditions listed as instances and some as lots? For producers there would seem to be minimal value in providing the lots information.
- Information on vaccination lesions by lot is not meaningful for the producer. There will always be an odd lesion come through and if the incidence is one in a hundred then it is not worth worrying about, whereas 50 out of a hundred is definitely an issue. If reported on a lot basis, these two occurrences would both be reported as one lot affected.

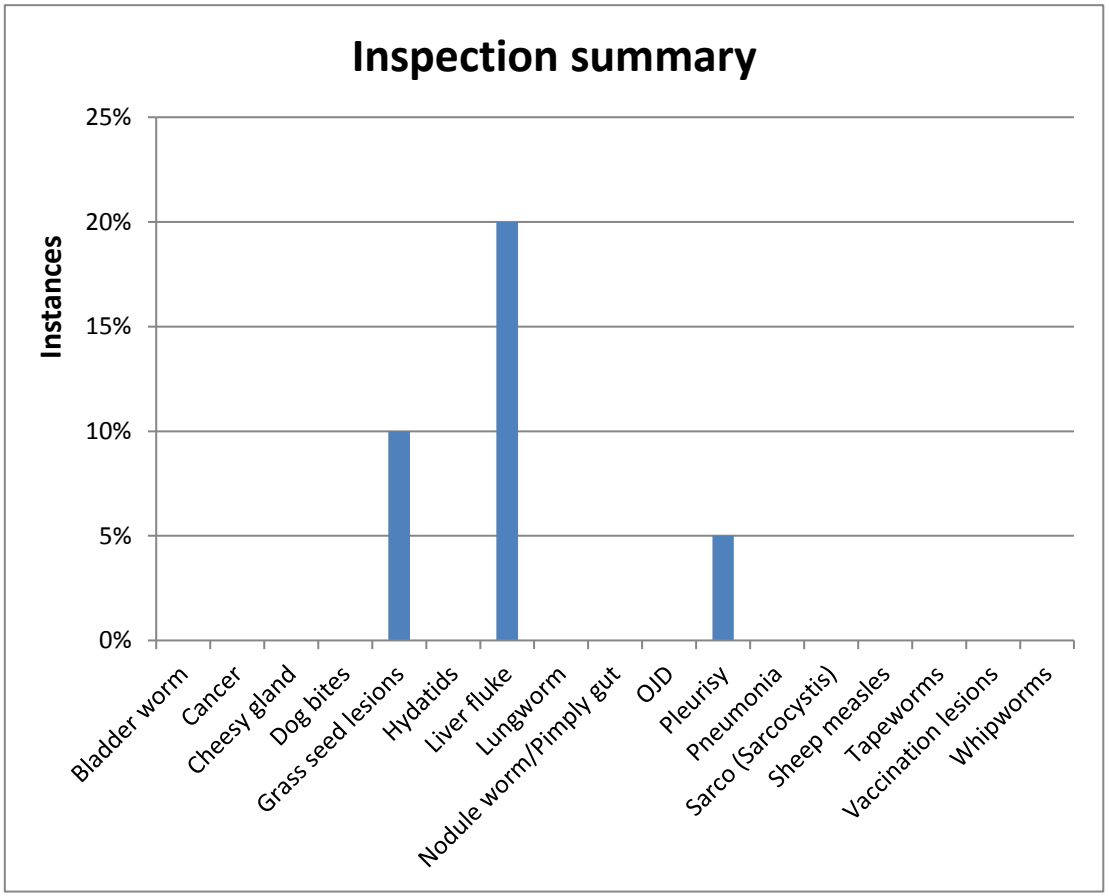
Fig 2. Animal Health and Disease reporting interface

Assessment summary

	Bodies	**%**
Total killed	482	
Total inspected	482	100.0
Heavy trim (approx.)	24	5.0
Condemned	2	0.4

Inspection **Summary**

Health Condition	Approx. **% of line**	Approx. **Instances**	Heavy **trim required %**	Condemn **number**
Bladder worm	**0%**	**0**		
Cancer				2
Cheesy gland	0%	0		
Dog bites	0%	0		
Grass seed lesions	10%	48	5%	
Hydatids	0%	0		
Liver fluke	20%	96		
Lungworm	0%	0		
Nodule worm/Pimply gut	0%	0		
OJD	0%	0		
Pleurisy	5%	24		
Pneumonia	0%	0		
Sarco (Sarcocystis)	0%	0		
Sheep measles	0%	0		
Tapeworms	0%	0		
Vaccination lesions	0%	0		
Whipworms	0%	0		
Other	0%	0		
Total				**2**



Objective 3: Producer Group Pilot

The third objective was to convene and facilitate a producer group workshop to evaluate the interface for animal health and disease feedback. This involved the following:

1. **Identifying and organising the group of producers who will participate in the workshop**
2. **Coordinating the logistics for the producer group workshop**
3. **Collating producer feedback on improvements to the animal health and disease interface and library of solutions.**

A producer workshop was held at Naracoorte, South Australia on Wednesday the 6th of August 2014 with members of the MacKillop Farm Management Group. The producer workshop covered the PIRSA Enhanced Abattoir Surveillance (EAS) program and Meat & Livestock Australia's (MLA) Livestock Data Link (LDL) system.

Highly productive and profitable sheep producers were approached to attend the workshop. There were a total of thirteen in attendance, including two livestock industry consultants and eleven livestock producers.

The aim of the workshop was to obtain feedback from sheep producers and key livestock industry personnel on both programs to ensure that they are relevant, easy to use and contain the right type of information. Feedback on opportunities to further enhance the value of these programs to the sheep industry was also important.

The EAS is a program peculiar to South Australia, which makes data collected through the National Sheep Health Monitoring Service available to SA producers consigning sheep direct to slaughter. There are many components of this successful program that could be adopted by LDL in reporting animal health conditions.

At this workshop a pilot version of the LDL animal health and disease reporting interface and solutions to feedback library, as developed earlier in this project, was trialled by those present.

Below is a summary of feedback in relation to LDL from the producer workshop, and as also provided by the consultants engaged on this project.

Disease and Animal Health Component of LDL

- Producers who are selling lambs direct to slaughter already know how many of their animals do not hit the target specifications. What they don't know now is why. They would like feedback on the carcases that are non-compliant, and in particular those that are too light. If this is because of significant trim then they want to know why. This is where the health conditions feedback needs to tie in with the carcase compliance data. There is a need to capture data on condemnations and heavy trim.
- Producers would like to receive detailed information about why a carcass was trimmed or condemned. One challenge will be to define what level of trimming is reported and how this data is easily captured.

- One of the key pieces of information that producers want to know about a reported condition is what part of the supply chain is impacted by that condition. Is the cost on-farm or at processing?
- Producers could see that there was the potential to use the carcass data as a marketing tool where they are able to consistently supply a product that is meeting target market specifications and is health condition free.
- Producers would like to have the ability to benchmark their disease and animal health data against their region, the state and nationally. It would also be useful to have it broken down by breed, i.e. Merino vs Crossbred, and by age.
- Producers liked the fact that the data is downloadable as a spreadsheet or csv file.

Animal health and disease reporting Interface

a. The reporting interface is user friendly and the links work well. The breakdown of information is good.
b. It will be important to keep this reporting as simple as possible. Careful consideration needs to be given to what conditions are included in this reporting. It is important not to include conditions just because the information is available. There needs to be some consequence of the condition for the producer, other sectors of the supply chain or human health.
c. This report could be enhanced by incorporating a graphical representation of the conditions reported. This could be shown as a bar graph with the full height representing the total number in the lot and a different colour within the same bar representing the number with the condition, so that it gives a good visual representation of the proportion of the lot reported.
d. The combination of reporting both numbers and percentage of the line affected works well.
e. Producers would like to see detailed information reported here on heavy trimming and condemnations and the reasons why. The threshold at which trimming is reported in this data set will require much discussion and some training of the slaughter floor workforce. The conditions which could possibly result in heavy trim are; rib fractures, grass seed, pleurisy, arthritis, vaccination lesions, and to a lesser extent dog bite, bruising and sheep measles.
f. Producers would like to be able to interrogate the data to examine trends in their own data over time, but also to compare their results to regional, State and national averages. It would also be useful if this analysis could be broken down by breed and age. The EAS interface that PIRSA is developing is a possible prototype for this type of analysis. In the future, a worthwhile improvement would be to have this aggregated data updated regularly, so that producers can compare their performance with real time data from their region, state etc.

Solutions to Feedback

a. Producers would like to see pictures of the conditions included. This may include a post-mortem photo, as well as a photo of a carcase following trimming for this condition.
b. Producers would like financial information included. This might be a dollar value placed on the cost of the condition on farm and to the processor.

c. In addition, where the information is available, some analysis as to the threshold prevalence of the condition where there is an economic benefit to treat or address the issue should be included. This may also include guidelines as to the level of incidence of a condition or disease that is acceptable and what level should trigger a response.

d. The information on the prevalence of the condition by State is not particularly useful, but it would be useful to include any relevant comments on relative prevalence between specific regions e.g. high rainfall vs pastoral, or summer rainfall regions vs winter rainfall.

e. Keep the information uncluttered and simple with just one good fact sheet linked. Producers can easily go to the internet if they want further information.

Comments on specific conditions in the solutions to feedback pilot library

a. Grass Seeds – the content under the heading Grass Seed Management Strategies, is too general for the purposes of this page. Perhaps include something along the lines of the following which is very similar to what appears on the home page of the second reference:
"Successful producers develop an integrated approach to grass seed management, suited to their property and business goals. There is no single strategy that can be applied to all situations so it is important to look at all the management strategies available, including short term, long term and emergency strategies."

Delete the last two references.

b. Hydatids – Consider dropping the second of the WORMBOSS references

c. Liver Fluke – Consider dropping the sentence "Prevention is another important strategy that can be used to control liver fluke". It doesn't add anything. Also consider the relevance of the links to grazing management and drench choice, as neither is specific to liver fluke.

d. Sheep Measles – Consider dropping the two references, "Sheep Measles cause condemnations" and "Sheep Measles potentially costly".

Conclusion

Objective 1 and 2 of this project were completed in advance of objective 3, with the MLA team taking on a number of the recommendations made in Objective 1 and 2 prior to the producer workshop in Objective 3. These included:

- The home page for a condition should contain some more basic information on the condition, such as information on treatment and prevention.
- It may be more producer friendly to identify one best reference and then list the others as "extra resources".
- It is recommended against the inclusion of OJD in the list of conditions reported through LDL.

Key Recommendations:

1. There is a need to capture data on condemnations and heavy trim, including both numbers and conditions involved.

2. Considerable discussion is required with the processing sector to determine what is feasible in terms of recording heavy trim data.

3. The graphical representation in the reporting interface needs to be enhanced to show the total number in the lot and the number of animals with the condition so it gives a good visual representation of the proportion of the lot reported.

4. Producers would like to have the capacity to benchmark their condition reports over time and against their region, State and nationally.

5. A high level round table discussion, including processors, is required to agree on what conditions to report to producers in LDL. It is important not to fall into the “cry wolf” scenario, where a producer is constantly getting information about a condition such as bladder worm, which they may be unlikely to want to do anything about, and they become blasé and miss a key report about a condition that could have serious consequences. Only conditions that have some consequence to the producer, either directly or indirectly should be reported.

6. For each condition, it should be highlighted on the high level summary of the solutions to feedback, what part of the supply chain is impacted, i.e. is the condition costing the producer money or the processor, or is it a human health issue.

7. The solutions to feedback need to incorporate data on costs, including some analysis as to the threshold prevalence of the condition where there is an economic benefit to treat or address the issue. This may also include guidelines as to the level of incidence of a condition or disease that is acceptable and what level should trigger a response.

8. Producers would prefer photos in the solutions to feedback information, along with limited comments on regional occurrence of the condition and just one key fact sheet link.