



# Review: Better estimation of national ewe and beef cow liveweights

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**Review:**  
**Better estimation of national ewe and beef  
cow liveweights**

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## **Purpose of the report being reviewed**

The report addresses the purpose for which it was prepared namely -

‘The project set out to validate the ewe and beef cow data currently used in the New Zealand methane inventory model by comparing the data with all other available information.’

## **Methodology, assumptions and sources used to estimate the data**

### Methodology

The report applied an objective and scientific approach wherever possible and also came to logical and sensible conclusions in relation to the quality of information available.

### Assumptions

Assumptions were well reasoned and founded on best available information.

### Information Sources

The information was sourced from recognised industry agencies such as Meat & Wool Economic Service and Landcorp Farming both of which have credible reputations within the sector. Other information sources were also considered such as research papers, a survey of farms and other.

It should be recognised that gaining high quality data on the subject paper is difficult with current methodology for data collection by recognised agencies such as Meat & Wool NZ Economic Service.

## **Accuracy of the reported data**

Data collected and reported by Meat & Wool Economic Service and research trials cited in the report can be considered high quality in terms of accuracy as in both cases professionally trained people are responsible for the data collection. In terms of the farmer based data there may be some discrepancies in terms of their discipline in adhering to weighing protocol – for example, time off feed in relation to gut fill and the major effect this has on liveweight.

In reaching their conclusions the authors of the report have taken a very responsible and comprehensive approach to describing the quality of the data and highlighted how the data could be affected by factors such as animal age, seasonal variation effects on liveweight and the quality of data in terms of how it was collected.

## **Feasibility/practicality/logic of any options presented**

Where possible the authors have applied statistical analysis to the data. In all other cases there is a reasoned approach to arriving at a conclusion.

Clearly data surrounding the authors' conclusions is dynamic and this comes about largely because there have been significant changes in the liveweight of the subject livestock in terms of their management environment and also their genetics.

The authors have covered off the environmental aspects associated with liveweight change over time however there could have been some more reference to genetic change especially for cattle. Genetic trend data for liveweight can be referenced from SIL. One such reference paper (Ref: 'Spin-off benefits from current genetic improvement in the NZ Sheep Industry and potential for enhancement') illustrates the changes in sheep liveweight and some of the associated ramifications'. This paper supports and adds value to the authors' conclusions. Also of interest in the NZ Angus Association Genetic Trendline which shows that mature cow weight EBV's have increased from some 50kg in 1995 through to almost ~80kg in 2009 a change of >2kg in EBV/annum.

Having noted that the authors' could have added more data and value to their report relating to genetic change in our flocks and herds this would not have changed the conclusions, on the contrary it would have added value.

### **Options of other data sources that have not been identified in the reports but may be of use in the future**

It is difficult to fault the logic used in the conclusions reached however some observations noted in reviewing the report were:

- With respect to ewe liveweight it would have been useful for a table to have been reported with the change in ewe and cow liveweight by age to demonstrate the increase in weight by age up to a certain age and then lose weight.
- As already noted genetic trend data would have added further value to the conclusions reached.
- The liveweight data for sheep could possibly have been associated with lambing percentage trends as another reference point. For example in the Landcorp Romneys a well tested calculation is used for liveweight in relation to scanning percentage. This relationship is 1kg tupping weight = 2.7% scanning percentage. Using the liveweight suggested in the report then a 60kg ewe would scan at 162% and lamb at 130% (assuming a 30% lamb loss factor) The B+L Farm Facts reports that the NZ Lambing % was 113.2% in 1999/00 and is now 121.5%. Clearly there have been some changes in the genetics of our sheep flock but there has also been some increase in LWT to support that change. Landcorp have increased their lambing % also and using their lwt x scan calculator the difference in weight to support the lambing % change would be 3kgs. Notwithstanding the change in liveweight over time another check on the weight of our ewes would be to check the suggested 60kgLW ewe with the Landcorp calculation in reverse. 121.5% lambing would relate to a 158% scanning (for Romney) and using the 2.7 convertor the ewes would have weighed 58.5kgs and therefore slightly less than that recommended by the authors.
- In Farmax there is a model calculator for lambing percentage according to ewe liveweight and breed. The modelling for Farmax is based on all available research and

industry knowledge. The Farmax lambing % for a 60kg ewe for Romney and Coopworth breeds is as follows:

Parameter	Romney	Coopworth
Scan %	152	134
Lambing %	125	134
Weaning %	121	130

The Farmax results are in reasonable agreement with the authors however depending on how the breed make-up of the national flock is assessed the results may be seen to be different. Clearly using lambing percentage to derive ewe liveweight is an indirect approach to determining ewe liveweight and the more direct approach is more appropriate.

- In terms of dressing percentages it is difficult to fault the approach taken by the authors other than to say that it would be useful to for agencies such as Beef + Lamb to include some of these parameters in their farm surveys.
- Landcorp Farming has very good and improving information systems however most of their data is confined to Angus cattle and Romney sheep. Nonetheless they are the Nation's largest sheep and beef farmer based on stock numbers and afford a good information source.
- With the introduction of a compulsory EID system for cattle through NAIT it is anticipated that one of the associated advantages will be that more accurate data will be collected at time of slaughter such that both pre-slaughter liveweight and carcase by breed should be able to be collected on individual animals on a routine basis. Provided this data can be accessed, assessed for accuracy and then analysed by an appropriate agency (such as represented by the authors of the subject paper) then this data should be of good value. Looking to the future there needs to be encouragement for meat processors to invest in systems to collect such data. Currently most beef processing plants have equipment which enables a pre-kill liveweight to be associated with carcase weight and grade. Unfortunately many beef processing plants have been frustrated with difficulty in reading barcodes on tags and good quality information is not routinely collected and reported.
- Clearly it will be sometime yet before EID is properly established and quality information is able to be reported. Added to the challenge is that sheep will not be required to be recorded with EID in the foreseeable future. Some of the issues relating to the implementation of EID are:
  - NAIT has already delayed implementation of EID until mid-late 2012 and this will be followed by a phase-in period which will probably mean in practice that quality information from NAIT will not be available for at least 5-7 years. The basis of this view is that:
    - The bulk of farmers with breeding cattle will not likely EID tag breeding cows and instead rely on direct to slaughter tags. This being the case data on cow age and associated data like their liveweight and carcase weight relationships will not be possible, at least not in the near future

- The bulk of farmers will only EID tag their natural increase each year so based on that approach the animal age data relationships for cull cows will take at least 5 years to establish to a point where there is useful and comparative data.
- Unless EID slaughter tags are read at plant and associated with pre-kill liveweight and then connected with carcase information including carcase weight there will continue to be a gap in our knowledge in this area.
- Even when processing plants have data capturing procedures it will be necessary to correlate the data to breed of cattle. The subject paper has already illustrated how difficult it is to get data separating dairy cows from beef cows and clearly there needs to be data on differences between beef breeds as well.
- EID will only apply to cattle in the short term and while competitor countries like Australia are now implementing sheep EID (following >15 years with compulsory cattle EID) it is anticipated that it will be at least 10 years before we see mandatory sheep EID and enjoy the associated benefits.
- In the longer term it is suggested that high quality data could be effectively be collected from processing plants for cattle and deer via compulsory EID.

## Authors Recommendations

1. That ewe liveweight is calculated from annual slaughter data back to 1990/91 using a dressing out percentage of 40%.
  - Reviewer agrees
2. That a figure of 547 kg is used for beef cow liveweight in 2009/10 and that this is decreased retrospectively by 8.5 kg/year back to 1990/91. Going forward, better data on annual beef cow liveweights might be available using carcass data from approximately 16,000 cull cows killed annually from Landcorp Farming Ltd and off Meat and Wool NZ survey farms.
  - Reviewer agrees