



AGRICULTURAL INVENTORY ADVISORY PANEL RECOMMENDATIONS FOR CHANGES TO THE AGRICULTURAL INVENTORY

Authors: Alice Marfell-Jones, Andrea Pickering

Main Purpose: Decide Discuss Note

Purpose of Report

1. The purpose of this paper is to advise the DDG (Policy) of the changes agreed by the Agricultural Inventory Advisory Panel (AIAP) to the agricultural national inventory methodology.
2. It is requested that the DDG (Policy) approve these changes and subsequent incorporation into the 2011 submission of the agricultural national inventory.
3. This report outlines the discussions held and the change that is being proposed. The briefing papers that were discussed and approved by the AIAP at their meeting on Fri 17 August 2010 are attached.
4. This report touches briefly on up and coming work presented to the AIAP for their discussion.

Summary

5. Four papers were presented to the panel
 - a. Separating of the emission factor, $EF_{3(PR\&P)}$, into dung and urine values for sheep and cattle.

The panel agreed to recommend the separation of the $EF_{3(PR\&P)}$ emission factor for sheep and cattle into dung and urine values. The recommended values are 1% for sheep and cattle urine and one quarter of a percent for sheep and cattle dung.
 - b. Review of the New Zealand poultry broiler population estimation.

The panel discussed the methodology used for estimating the poultry population values. A second independent review of the report was recommended. However, due to time constraints the panel agreed to defer any discussion and decision on changing the methodology of estimating poultry population numbers until the 2011 panel meeting. The panel also agreed that the emission factors used for poultry should remain at the current New Zealand specific values.

- c. Review of the population models and ewe and beef cow liveweights used in the inventory.

The review of the population models for sheep and cattle contained a large volume of suggested changes. The panel discussed and noted these suggested changes which will be presented to the panel again in 2011 once the review has been independently reviewed.

- d. Nitrous oxide emissions from crop residue and savannah burning.

A review of suggested changes to the methodology for the estimation of nitrous oxide from crop residue and savannah (tussock) burning were also discussed. The panel agreed that the report should be reviewed and that further work in this area was required before any recommended changes to the Inventory could be agreed upon. Therefore, the decision on these changes has been deferred until the review and extra work has been completed. This should be done by the 2011 panel meeting.

Strategic Risks

6. MfE, on behalf of NZ submits the National Inventory to the UNFCCC. The National Inventory is reviewed annually by internationally qualified reviewers. The reviewers have the authority to accept or reject inventory changes. Rejections usually occur as a result of a lack of transparency/robustness in the changes being made and/or inadequate systems and processes used to generate the national inventory. If this should happen there is a long and detailed process that is followed whereby the reviewers and country concerned work through the issue. In such instances it is very rare that financial penalties are applied.
7. Obtaining AIAP agreement to inventory changes provides transparency and robustness and minimises the risk of the UNFCCC reviewers rejecting NZ's agricultural inventory improvements.

Strategic Opportunities

8. NZ has made a commitment to meet UNFCCC requirements. Continuous inventory improvements demonstrate this commitment.
9. The proposed change results in two main benefits:

- a. A more accurate reflection of the real world in the methodology used to calculate the inventory; and
- b. A reduction in NZ's agricultural greenhouse gas liability.

Background

10. The AIAP met on the 17th August 2010 and discussed the potential changes to the agricultural section of the National Inventory. Not all changes have been recommended at this current time. Some background of the discussion is below and further details are outlined in the attached briefing papers.

Separation of the $EF_{3(PR\&P)}$ value into dung and urine values

11. The main recommendation for the 2010 AIAP meeting was the separating of the $EF_{3(PR\&P)}$ value into dung and urine for sheep and cattle.
12. The $EF_{3(PR\&P)}$ value is used to estimate nitrous oxide emission from animal manure. It is currently a country specific value that was researched extensively over many years. The original research was carried out on sheep and cattle urine, but has always been applied to animal manure (dung and urine). Scientific evidence demonstrates that nitrous oxide emissions from dung are substantially lower than that from urine.
13. Therefore the AIAP recommend the following changes to the agricultural section of the National Inventory:
 - a. the value for $EF_{3(PR\&P)}$ be split for cattle and sheep so that there is a value for urine and a second value for dung. These being 0.01, the current country specific value for $EF_{3(PR\&P)}$ to be kept for cattle and sheep urine, and all other species manure, and one quarter of a percent for $EF_{3(PR\&P\ DUNG)}$ for cattle and sheep dung.

Review of the poultry broiler population estimation

14. The second paper which was discussed reported on a suggested change to the methodology for estimating poultry broiler population numbers. The report was written by the Poultry Industry Association of New Zealand (PIANZ) and suggested that the current methodology over estimated the number of poultry broiler birds in New Zealand. The original methodology was agreed upon by PIANZ, Statistics New Zealand and MAF. However, due to a change in what the population number is used for, PIANZ has suggested that the methodology be reviewed.
15. Although the report had initially been reviewed, the review concentrated on other sections of the report, namely GHG emissions from manure management. Therefore, the panel recommended a second review be carried out, concentrating on the population estimation methodology.
16. This review has been completed but through discussions with Statistics NZ and PIANZ post AIAP meeting, a second alternative method for dealing with the ambiguity around poultry broiler population numbers was suggested. The decision has therefore been deferred until the 2011 AIAP meeting to insure a comprehensive discussion on

this matter. No recommended change to the inventory has therefore been put forward from this paper.

Review of population models and ewe and beef cow liveweights

17. The third paper summarised two reports on potential changes to the population models used within the inventory model to estimate livestock emissions. These changes ranged from improvements to the estimation of breeding animals weights, to the date of lambing and calving. Due to the large body of potential changes in these reports, presentation of this paper to the panel was so that their attention could be drawn to the up and coming potential changes. Once these reports have been reviewed, they will then be presented to the panel in 2011 for consideration.

Nitrous oxide emissions from crop residue and savannah burning

18. The final paper presented to the panel summarised the potential changes outlined in a report on nitrous oxide emissions from crop residue and savannah, or tussock, burning. Not all potential changes outlined in the report were presented for consideration for incorporation into the 2011 submission of the inventory. This was because the report was yet to be reviewed.
19. Although the report had not been peer reviewed three potential changes were presented to the panel for consideration. This is not usual practice but crop residue and savannah burning where two areas that were pin pointed in recent Inventory reviews as requiring timely action.
20. The potential changes presented consisted of:
 - a. The inclusion of harvest indexes in the calculation of crop residue emissions
 - b. The activity data and methodology used to determine the value used for the fraction of crop residue burned in the field, and
 - c. The activity data used for calculating emissions from savannah burning.
21. The panel felt that the inclusion of harvest indexes into the methodology for the 2011 submission was appropriate once they were peer reviewed. However, due to a time delay in a review on the original report, the panel have not been able to confer and provide final agreement for this recommendation. Therefore no recommendation for a change to the fraction of crop residue burned has been progressed and this will be deferred to the 2011 AIAP meeting.

Proposed change for the 2010 Inventory submission

22. In summary, the only recommendation that has been put forward from the 2010 AIAP meeting is that of separating the emission factor $EF_{3(PR\&P)}$ into dung and urine values for sheep and beef.

The Proposed Process and Key Dates

Process	When	Who
DDG (Policy approves recommended changes)	23 December 2010	Paul Stocks
MAF advises MfE of the changes	10 January 2011	Andrea/Alice
Incorporation of changes into the agricultural inventory	21 January 2011	Andrea Pickering
CE level sign off of agricultural inventory numbers and text	24 January 2011	Wayne McNee
Send agricultural Inventory numbers and text	28 January 2011	Andrea/Darran

Recommendations

It is recommended that the DDG (Policy):

23. **Approve** that for cattle and sheep urine, and all other species manure, the country specific value for $EF_{3(PR\&P)}$ of 0.01 continue to be applied as is the current practice.

Approved / not approved

24. **Approve** that for cattle and sheep dung, a country specific value be used ($EF_{3(PR\&P DUNG)}$) of one quarter of a percent.

Approved / not approved

Alice Marfell-Jones
Manager Monitoring and Evaluation

Approved/ Not Approved/ Approved as Amended

Paul Stocks
Deputy Director-General (Policy)

23 December 2010