MAF POLICY
17 August 2010

Agricultural Greenhouse Gas Inventory Advisory Panel Meeting

17 August 2010

MAF, Pastoral House Meeting room 17.1

Minutes

Meeting start: 12:50

Attendees:

Alice Marfell-Jones (Chair, MAF), Andrea Pickering (Minutes, MAF), Andy Reisinger (RSNZ, Victoria University), Frank Kelliher (NzOnet, AgResearch), Keith Lassey (Methanet, NIWA), Sonia Petrie (MfE)

The purpose of the meeting was for panel members to discuss and approve proposed changes to the Agricultural Greenhouse Gas (GHG) Inventory. The panel would then advise the Deputy Director-General (DDG MAF) of which changes were considered scientifically robust enough to implement. Three proposed changes and a briefing to be noted were presented to the panel at the meeting. A briefing paper and the report were all submitted for each proposed change for discussion and agreement. Reviews for two of the changes were also included. Summaries of reports are found in the briefing papers.

Briefing one: Separating of the emission factor $EF_{3PR\&P}$ into dung and urine values for sheep and cattle.

1. This change has a more substantial effect on the Agricultural inventory than was originally thought by some panel members due to the actual proportion of nitrogen which is proportioned into dung.
2. There was some confusion with whether the report was suggesting a change to the urine and dung emission factor or just a change to the dung emission factor and the retention of the current emission factor. Although it is stated in the report that the recommendation was that "the N_2O emission factor for urine **remains** at 1%, and the N_2O emission factor for cattle and sheep dung is reduced to 0.25%" this fact needed to be highlighted to avoid confusion.

3. Panel members were unsure as to why the urine emission factor was 1 significant figure while the dung emission factor was 2 significant figures. This implies an accuracy that may not exist. It was suggested that possibly instead of 0.25% the dung emission factor should be reported as "one quarter of a percent".
4. It was noted that the research indicates that the sheep dung N_2O emissions factor may be indistinguishable from zero. However it is difficult to separate any emissions from the back ground N_2O emissions and therefore it was agreed that more research is required before a sheep specific emission factor can be developed.
5. Therefore for the time being the $EF_{3PR\&P}$ for dung and urine will be the same for sheep and cattle until further research can justify a different EF for sheep.
6. The panel agreed that the change in the dung emission factor should only be applied to sheep and cattle as there has been no research to suggest a change to any other species.
7. The requirement of uncertainty assessment (95% confidence interval) within the reports was recommended, even if this assessment was at a basic level. This assessment is required in order for the over all uncertainty of the Inventory to be determined.
8. Within the National Inventory Report (NIR) the fact that this reduction in emission factor is from research which follows good practice needs to be stressed. This is in order to highlight that even though many adjustments to emission factors have been in the downwards direction, the adjustment is from many years of extensive research. In the case of the dung and urine separation, research in this area has been ongoing for approximately seven years.
9. It was also noted that separating dung and urine in the calculation of nitrous oxide may also have consequences for other fractions such as $Frac_{GASM}$ and $Frac_{LEACH}$. This was highlighted in the report on the country specific $Frac_{GASM}$ value presented to the panel in 2009.

Decision/action

1. Amend brief (paragraph 13 – 15) to include changes requested in report. These being:

- suggested wording of one quarter of a percent instead of 0.25% value for the dung emissions factor
- Uncertainty to be reported (as 95% confidence interval)
- Further clarification that the 1% urine emission factor value is being kept unchanged.

Action: **Andrea**

Brief to then be distributed to panel members for final approval. Action: **Andrea**

2. Recommend that the emission factor $EF_{3PR\&P}$ for sheep and cattle be separated into dung and urine values.
3. Recommend that the country specific emission factor urine $EF_{3PR\&P}$ for sheep and cattle be kept at 1%.
4. Recommend that the emission factor dung $EF_{3PR\&P}$ for sheep and cattle be changed to one quarter of a percent.
5. Incorporation of recommendations into NIR once approval by MAF (Policy) deputy Director General and MfE has been obtained. Action: **Andrea**

Briefing two: Review of the New Zealand poultry broiler population estimation

1. This report detailed a change a suggested change in the methodology to estimating annual population figures for broiler chickens, ducks and turkeys. It also investigated the emission factors and values used to derive the emission factors currently used in the calculation of emissions from poultry. New Zealand specific data is suggested for use.
2. The panel expressed their approval on the detailed nature of the report and commented on the large amount of work that was undertaken to pull together the report.
3. However it was agreed that further work of a scientific/research nature specifically on poultry in New Zealand, rather than to experts from the industry concerned, is required before any changes to emission factors can be carried out.
4. It was agreed that although the report was reviewed, the change of the population equation needs to be assessed by an independent population model expert as none of the panel members felt they had the skills to fully review this work.
   Conditional approval was therefore given on the basis that the independent expert agreed to the alternative population methodology. This review is to be circulated

to panel members. Also MAF, Statistics New Zealand and the Poultry Industry association would work together and agree on the methodology. Final sign off by the panel would then be via email and the change could in effect be implemented in time for the 2011 NIR submission if all work is complete by the required time.

5. The panel also suggested that an actual authors name is required on the report, rather than the association name.
6. **UPDATE 16 November 2010:** Follow up discussions with Statistics New Zealand and the poultry industry resulted in a different methodology being suggested for the calculation of emissions from the poultry industry. Through follow up emails with panel members it was therefore decided to delay the decision on this issue until the 2011 panel meeting where further discussion can be held.

Decision/action

- Amend recommendation in brief to reflect the panel's requirement for a further review of the proposed population equation by a population model expert. Action: **Andrea**
- Organise review of alternative population equation by independent population model expert. Action: **Andrea**
- Circulation of review when complete: **Andrea**
- Final sign off by panel can be carried out via email. Action: **Panel**
  UPDATE 16 November 2010: this action point is no longer relevant. Follow up on this issue will occur during the 2011 panel meeting.

Briefing three: Review of the population models and ewe and beef cow live weights used in the inventory

1. This briefing consisted of two reports. One on ewe and beef cow live weights and a second on the population model currently used in the model to estimate greenhouse gas emissions from the four main species dairy, beef, sheep and deer. Due to the detailed nature of these reports they where bought to the attention of the panel this year, although reviews are still to be carried out and presentation of recommended changes will not occur until 2011.

2. The panel noted that the lead authors on these reports are good choices for a review of the model as they are independent of the entire inventory model process.
3. Panel members have noted this work and have agreed it should be presented to the panel in 2011 after it has been reviewed.

Decision/action

- Reports to be reviewed over the next 12 months and recommended changes presented to the panel in 2011. Action: **Andrea**

Briefing four: Nitrous oxide emissions from crop residue and savannah burning

1. This report details work on activity data and emission factors for nitrous oxide from crop residue, indirect nitrous oxide leaching from crops, and direct emissions from stubble and savannah burning.
2. Although this report has not been peer reviewed, three potential changes where discussed for recommendation of inclusion in the inventory. All other recommendations will be presented once they have been peer reviewed.
3. The three potential changes discussed consisted of:
    a. The inclusion of harvest indexes in the calculation of crop residue
    b. The activity data and methodology used to determine the value used for the fraction of crop residue burned in the field
    c. Activity data on savannah burning
4. The panel felt that although the harvest index's reported in the report are New Zealand specific, there is currently a range of potential values and therefore detailed expert opinion is required on the exact value to be used before this can be included in the inventory.
5. Peer review was requested by the panel on the methodology used for the fraction of crop residue burned. This is because there is now a short time series of activity data that can be used in this calculation and rather than the panel assessing this, it needs to be assessed by experts and then reviewed.
6. The panel agrees conditionally to the incorporation of this information in the 2011 submission of the NIR subject to a positive outcome of the review. The review is to be circulated to panel members and a final email agreement on the incorporation of this change into the NIR. **UPDATE 1 December 2010: This review has been delayed and will not be complete in time for the 2011**

submission. Therefore this change will not be included in the 2011 submission.

7. Savannah burning is a very difficult area due to the lack of information available and the potential issues around historic data. However, this area still needs to be reported on in the NIR. The panel suggested further documented work in this area which would consist of:
    a. Expert opinion on the current assumption of 20% of consented tussock land actually being burned.
    b. Expert opinion on the use of the short time series of activity data now available.
    c. Expert opinion on how to deal with years where there are no burning consents of data from the Agricultural Production Survey (APS).
8. The panel does note the difficulty in finding an expert in the area of savannah burning and has suggested possibly someone in ecology or conservation may be of assistance.

Decision/action

- Only the incorporation of data for the fraction of crop residue burned have been recommended for the 2011 submission of the NIR. This is subject to a positive review and final email agreement from the panel.
- Briefing to be amended to reflect decision. Action: **Andrea**
- Organisation of review on fraction of crop residue burned. Action**:** **Andrea**
- Circulation to panel of review on fraction of crop residue burned. Action: **Andrea**
- Final email sign off of fraction of crop residue burned after review. Action: **Panel**
- Further work is required in the areas of harvest index and fraction burned and savannah burning. Action: **Andrea**
- Once this work is complete a review of this and the current report is required. Action: **Andrea**

General

1. The difficulty in getting information published in a peer reviewed scientific journal was noted. The difficulties include:
    a. Funding for the time to write these papers. If the original contract for the research does not include funding for the writing up of the data in a paper it is often difficult to obtain. An issue with including the funding in the initial contract is for short term projects (i.e. 1 year), the time in which it takes to write the paper is out of the scope of the contact.
    b. Even when papers are written and submitted, acceptance by scientific journals is not guaranteed. Recently the refusal rate has increased dramatically with some journals consistently rejecting approximately 90% of papers submitted.
    c. Some journals have also started to reject papers if work has already appeared in a report which the ministry has published on their website. This issue needs to be assessed as information needs to be available publicly but if by placing reports on ministry websites this is preventing publishing in scientific journals, a solution needs to be found.
2. Update on action points from 2009
    - All amendments and clarifications to briefs were carried out. Changes were incorporated into the 2010 submission of the NIR.
    - A paper on the uncertainty in the agricultural inventory was to be published – this is still pending due to financial and resource implications.

Summary

1. Recommend that the emission factor $EF_{3PR\&P}$ for sheep and cattle be separated into dung and urine values, the emission factor urine $EF_{3PR\&P}$ for sheep and cattle be kept at 1% and the emission factor dung $EF_{3PR\&P}$ for sheep and cattle be changed to one quarter of a percent.
2. After assessment by an expert population modeller the panel recommends that MAF, Statistics New Zealand and the poultry Industry Association work together to modify the calculation of broiler chicken, duck and turkey populations, **but only if approved by the expert**.

3. No changes to the poultry emission factors are recommended.
4. The work on ewe and beef cow liveweight, and the population model in the inventory was noted. This work will be presented to the panel in 2011 after a review of the work has been carried out.
5. Further work and expert review is required on the activity data and emission factors for crops and savannah burning before being represented back to the panel. The earliest date for this is the 2011 panel meeting.

Meeting closed 14.30