

# **Agricultural Greenhouse Gas Inventory Advisory Panel Meeting**

## **15 November 2011**

MAF, Pastoral House Meeting room 6.4

### **Minutes**

**Meeting start: 09.30**

**Attendees:**

Alice Marfell-Jones (Chair, MAF), Andrea Pickering (MAF), Andy Reisinger (RSNZ, New Zealand Agricultural Greenhouse Gas Research Centre), Frank Kelliher (NzOnet, AgResearch), Keith Lassey (Methanet, NIWA), Simon Wear (MAF), 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. Seven areas of proposed changes were presented to the panel at the meeting. A briefing paper, the report and a review were all submitted for each proposed change for discussion and agreement. Summaries of reports are found in the briefing papers.

**General discussion**

1. The panel noted that uncertainty was not included in many of the reports. Uncertainty is useful information that the panel uses to determine if the proposed change is robust<sup>1</sup>. In the past many reports have not attempted to even begin to assess the uncertainty and therefore the panel suggests that this requirement be stated in any future contracts to ensure this area of work is covered.

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<sup>1</sup> Uncertainty analysis is required under the decisions reached at Conferences of Parties to the UNFCCC and meetings of the Parties to the Kyoto Protocol (Decision 19/CMP.1). Decision 19/CMP.1 states all parties shall make a quantitative assessment of inventory uncertainty for each source category and for the inventory in total following IPCC good practice guidance. The Climate Change Response Act 2002 (Section 32) reflects this requirement stating that the inventory agency must undertake an assessment of uncertainties

2. The panel was unsure if the reports included author responses to reviewer comments. It would be useful for the panel if it was noted whether or not the reviewer's comments had been considered by authors.

*Decision/Action*

3. Ensure uncertainty analysis is included in all future inventory research contracts.

Action: **Agricultural inventory contracts manager**

4. Ideally authors should be given an opportunity to respond to reviewer comments. Briefing papers to the Panel should note whether the authors response to the reviewer comments have been included or not.

Action: **Agricultural inventory contracts manager**

**Briefing one: Nitrous oxide emission from cultivated histosols**

5. Clarification was obtained on the expected role of the panel on this briefing. The recommendations in the briefing will therefore be updated to reflect that agreement was sought to not change the definition of organic soils but a change to the revised mapping methodology would be made. The value of the activity data would still be noted.
6. There was clarification on the implications of moving to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. These guidelines cover all managed organic soil rather than just organic soil that is cultivated. Therefore the area reported will increase substantially. Therefore further work on the emission factor used to estimate nitrous oxide emission from managed organic soils may be necessary. The panel noted that currently there is limited data available in this area for New Zealand soils.
7. Currently the use of the 2006 Guidelines is not allowed when estimating emissions estimates for the National Inventory Report unless it can be proven that these guidelines are nationally appropriate. The panel queried how much justification was needed before the Expert Review Team would accept a country using the 2006 Guidelines. It was noted that each Expert Review Team may have different standards depending upon the composition of the team. There is currently no set limit and countries are required to make a best judgement call.

*Decision/action*

8. Amend brief:

- Change the wording of paragraph 24 to “Agree to no change in the definition of organic soils”
- Insert a paragraph before the current paragraph 25 saying “Agree to the revised mapping methodology for determining the area of organic soils in the agricultural sector”
- Change the existing paragraph 25 to paragraph 26
- Agree to all recommendations as amended

Action: **Simon**

**Briefing two: Reduction of nitrous oxide emission from nitrogen fertiliser due to the use of urease inhibitors**

9. The data presented in the report is at least two years old and at the time of the report no new information could be obtained.
10. Due to the variability in the data, the inclusion of any one of the studies has a large influence on the recommended mean. Ideally sufficient studies should be carried out so that the mean is stable, i.e. inclusion of new work has little impact on the mean.
11. Many of the trials are carried out by industry as one company has rights to the product. However, there is a collaborative trial being carried out with Industry and AgResearch through the Primary Growth Partnership Fund, and this new information is now available.
12. This information had only become available a few days prior to the panel meeting, and preliminary analysis suggests that the new data may affect the outcome of this recommendation. The panel therefore agreed that a follow up report including the new data be written. Once reviewed a recommendation on the methodology for emissions when urease inhibitors is used can then be presented to the panel in 2012.

*Decision/action*

13. MAF to obtain an updated report incorporating available new data and update uncertainty analysis.

Action: **Andrea/Gerald Rys**

14. Defer the decision on this recommendation until the 2012 Agricultural Inventory panel meeting at which time the updated, reviewed report with uncertainty analysis will be presented to the panel.

Action: **Agricultural inventory compiler**

### **Briefing three: Poultry methane and nitrous oxide emissions**

15. The panel felt it was a good report although the separate sections were a little disjointed. This is possibly due to different people writing the different sections.
16. The panel commented that unfortunately the report is not very transparent about the age of broiler birds and how this affects the average annual population number. This is a key point and panel members found that once they understood this aspect of the calculation that the methodology for estimating average annual bird population made a lot more sense. The panel also felt that if there was more explanation around this then it would be obvious that this method is consistent with other methods in the Inventory.
17. The panel also recommends that authors be noted on reports rather than just the name of the agency.
18. All recommendations were agreed to with some amended wording for paragraph 45.

#### *Decision/action*

- Amend paragraph 45 to read “Agree to 2010 estimate of free range excreta vs other animal waste management systems, and MAF to derive a time series back to 1990 using expert opinion”.

Action: **Simon**

19. Agree to all recommendations as amended

### **Briefing four: Nitrous oxide and methane emissions from swine**

20. The panel noted that the report used appropriate use of the available data to work out recommendations, which was done in a similar manner as other work on the inventory.
21. The panel also noted that the reviewer comments were positive.
22. Before being placed on the MAF website the authors department and place of employment needs to be added.

23. All recommendations were agreed to. In the case of paragraph 38 where there were two options for consideration by the panel, the panel agreed to recommend the second option; that of following the 1996 IPCC guidelines manure management categories. This was due to the implications that using the 2006 Guidelines manure management categories would have on other species emission estimates. Work has not been carried out in this area for these other species and therefore using the 2006 guidelines manure management categories for these species is not justifiable.

*Decision/action*

24. Insert authors department and place of employment into cover page of report

Action: **Andrea**

25. Agree to all recommendations (second option – 1996 Guidelines – for paragraph 38).

**Briefing five: methane and nitrous oxide emission from crops, and tussock burning.**

26. The panel felt that the approach taken, and recommendations given, are based on the best available information.

27. However, the recommendation on forage brassica is still very uncertain and not transparent. It is expected that the data collected will improve going forward and this can then be used to further improve the time series back to 1990.

28. Until such time as further information can be collected, the panel is not comfortable with including the time series data in the inventory.

29. The panel suggests that further work taking into account the whole farm system is required to determine the most important component of forage brassicas and to improve the time series estimation.

30. Amendments to the wording of the recommendation in paragraph 30 were also requested to explain from where the activity data is sourced.

*Decision/Action*

31. Amend paragraph 30 to “Agree that new and updated activity data - based on Statistics New Zealand data - and methods to estimate cropping data are used for the 2012 inventory submission”.

Action: **Simon**

32. Agree to all recommendations as amended except for the recommendation under paragraph 31 on forage brassicas.

### **Briefing six: Methane emissions and nitrogen excretion rates for New Zealand Goats**

33. Paragraph six of the briefing needs to be corrected to reflect the default for methane from goats in the 1996 IPCC guidelines, which is 5kg CH<sub>4</sub>/head/year.
34. It was noted that the goat population fell substantially from over 1 million animals in 1990 to around 80,000 animals in 2009. Expert opinion is that the dairy goat herd population has changed very little over this time, and therefore now makes up a larger proportion of the total goat herd population. The different emission factors for recommended 1990 and 2009 reflect this.
35. Amendments to paragraphs 26 to note the uncertainty and 27 to clarify how the emission factor between 1990 and 2009 is to be determined, are required.

#### *Decision/action*

36. Amend paragraph six to read “The 1996 IPCC guidelines, Good Practice guidelines (2000) and 2006 IPCC guidelines do not recommend a value for nitrogen excretion rate (N<sub>ex</sub>) for goats”.

Action: **Andrea**

37. Amend paragraph seven to read “In both the 1996 IPCC guidelines and 2006 IPCC guidelines a value of 5 kg CH<sub>4</sub>/head/year is used as a default value for methane production from goats. In the 2006 IPCC guidelines it is noted that the emission factor is based on a live weight of 40 kg”.

Action: **Andrea**

38. Amend paragraph 25 to read “Agree that the value for estimating methane emissions from goats in the New Zealand National Inventory Report is changed to 8.5 ± 0.7 kg CH<sub>4</sub>/head/year for 2009 and 7.4 kg CH<sub>4</sub>/head/year for 1990, noting the reported uncertainty is at 95 per cent confidence interval”.

Action: **Andrea**

39. Amend paragraph 26 to read “Agree that the value used to estimate nitrogen excretion from goats in the New Zealand National Inventory Report be changed to 12.1 ± 1.0 kg N/head/year for 2009 and 10.6 kg N/head/year for 1990, noting the reported uncertainty is at 95 per cent confidence interval”.

Action: **Andrea**

40. Amend paragraph 27 to read “Agree that the for intermediate years between 1990 and 2009 that the EF and  $N_{ex}$  values should be interpolated based on assumptions that the dairy goat population has remained near constant state over time”.

Action: **Andrea**

41. Approve all recommendations as amended

### **Briefing seven: Review of population models within the national methane inventory (2010)**

42. The panel did not agree with the reviewer to exclude change i) ram growth rate from 50 g/d to 0 g/day. Animals would be of a certain age and size before being moved into this category, and although they may continue to grow, the panel did not believe that 50 g/day was accurate, and that 0 g/day would be a better estimate.

43. Paragraph 17 therefore needs to be amended accordingly.

44. The inclusion of change k) cow live weight determination is confusing as it is addressed in a separate paper. Therefore this changes needs to be excluded from this briefing.

*Decision/action*

45. Remove change k from paragraph seven and adjust subsequent lettering.

Action: **Andrea**

46. Amend paragraph 17 to read “Agree that the recommendations detailed in paragraph seven for:

Sheep - points a. to j.,

Cattle – points k to r, excluding o., p., and q.,

Deer s. – t.,

Dairy u. – x.,

should be implemented in the National Methane Inventory model in time for the 2012 submission to the UNFCCC.

Action: **Andrea**

47. Amend paragraph 18 to read “Agree that the three recommendations that the reviewer did not agree with in paragraph 7 should not be incorporated until further data analysis has been carried out, those being

Cattle - points o., p., and q,

Action: **Andrea**

48. Approve all recommendations as amended

**Briefing eight: Better estimation of national liveweight – Part 2 cows**

49. Recommendation was approved with some amendments to the recommendations to aid in transparency

*Decision/action*

50. Amend paragraph 25 II to read “dairy dressing out percentage be changed from 44 per cent to 42 per cent (slightly lower than that of beef), to harmonise with the reduction in dressing out percentage”.

Action: **Andrea**

51. Approve all recommendations as amended

**Briefing nine: Better estimation of national liveweight – Part 1 ewes**

52. It was noted that the dressing out percentage for ewes is not a true dressing out percentage in the traditional sense of the term. Dressing out in the sense used here is more an adjustment factor to estimate the breeding flock average liveweight of ewes from the ewe carcass weight at slaughter. Ewes sent for slaughter are thought to be older and lighter than the breeding flock and therefore just applying a dressing out percentage results in an underestimation of the average breeding ewe.

53. All panel members agreed with the recommendation as it stands.

*Decision/action*

54. Approve all recommendations

**General**

55. Feedback from the panel was sought on the timings of the meetings. Late October/early November suits all panel members

56. It was noted that the panel has been in existence for 3 terms and therefore there will be a review of the terms of reference. Once the revised terms of reference have been viewed the panel members are then asked to indicate if they wish to continue on the panel.



57. Feed back from the panel was that receiving all documentation in hard copy was very beneficial to aiding members review the documentation, especially as there was so much of it this year.
58. There was concern from the panel that New Zealand has been expected to carry out substantial amounts of effort investigating possible improvements to the inventory in areas that are highly insignificant. There is concern that this is a drain on New Zealand's small pool of expertise and funding and is not justified by cost effectiveness and level of change. They understand the requirement of the United Nations Framework Convention on Climate Change (UNFCCC) for continual improvement but fully support New Zealand in pushing back on the UNFCCC to not pursue these immaterial recommendations.
59. There is therefore a need to determine what a "significant factor" is. Independent opinion on what looks to be significant work or run a "proposed research priority programme" would be worth pursuing.
60. The panel was also happy to be used as a "reality check" on any future work.
61. As more changes could potentially be put to the panel in the future a suggested concept of a page limit could be set as an indication of whether or not 1 or 2 panel meetings should be held.
62. It would be beneficial to panel members if report page numbers could be cross referenced in the briefings so that panel members could easily source where in the report certain information is recorded.

## **Summary**

63. With the exception of the report on Urease inhibitors and the recommendation to include estimates brassica cropping as proposed in the report, all recommendations were agreed to, generally with amendments for clarification.
64. A further report on the work on Urease inhibitors will be obtained that includes all new information. This will be reviewed and presented to the panel in 2012.
65. Uncertainty analysis is important and therefore this needs to be included in future contracts so that it is carried out in future.

66. It would be beneficial if authors were given the opportunity to comment on reviewer comments. In the briefing it should be noted to the panel if the final report has addressed any of the reviewer comments.

**Meeting closed 14.30**