Ministry for Primary Industries
Manatū Ahu Matua

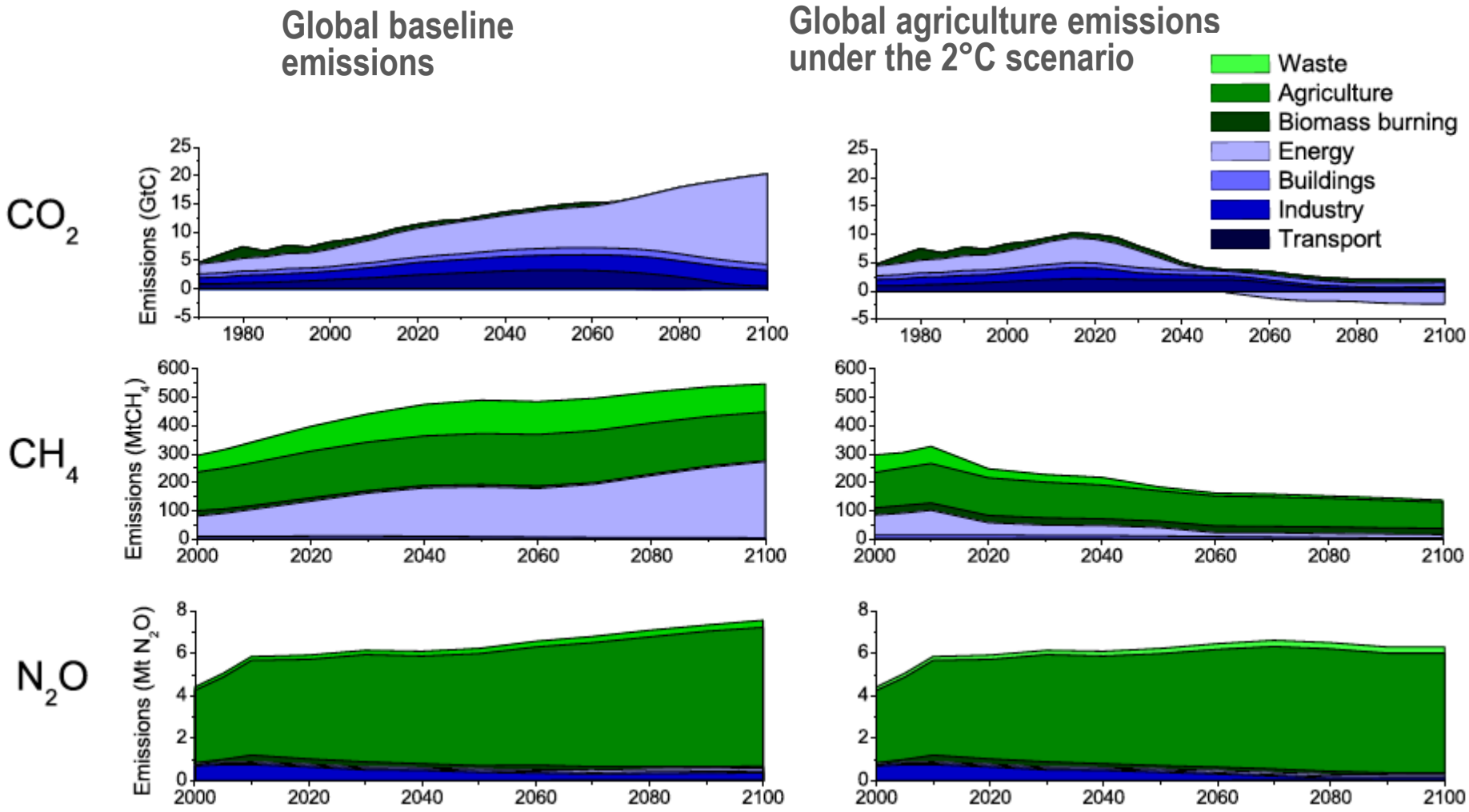
Synergies among various processes under the Convention

SBSTA Issues Related to Agriculture

23 May 2016 – Paul Melville

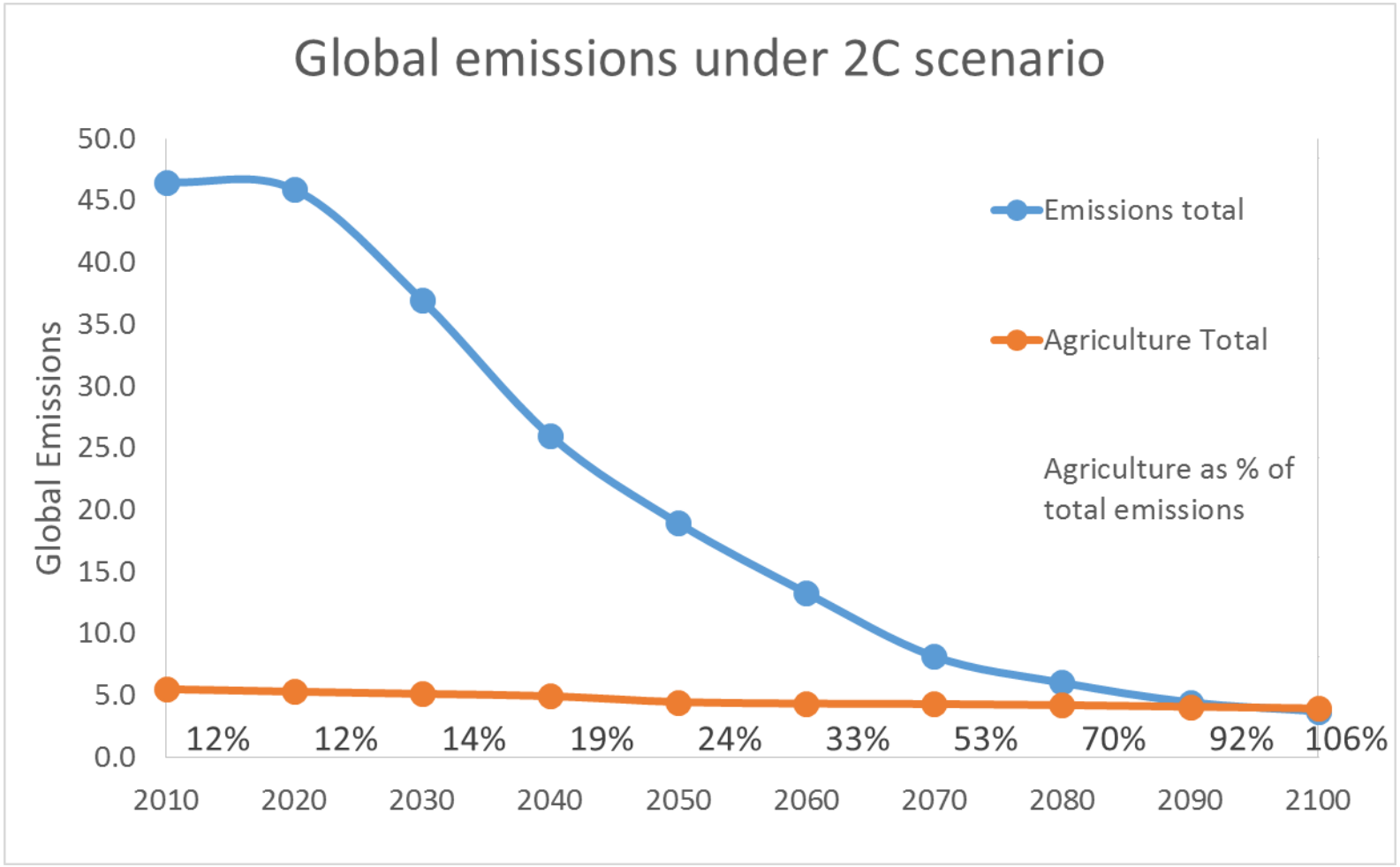
www.mpi.govt.nz

2C context: Global agricultural emissions have a different mitigation pathway to other sectors



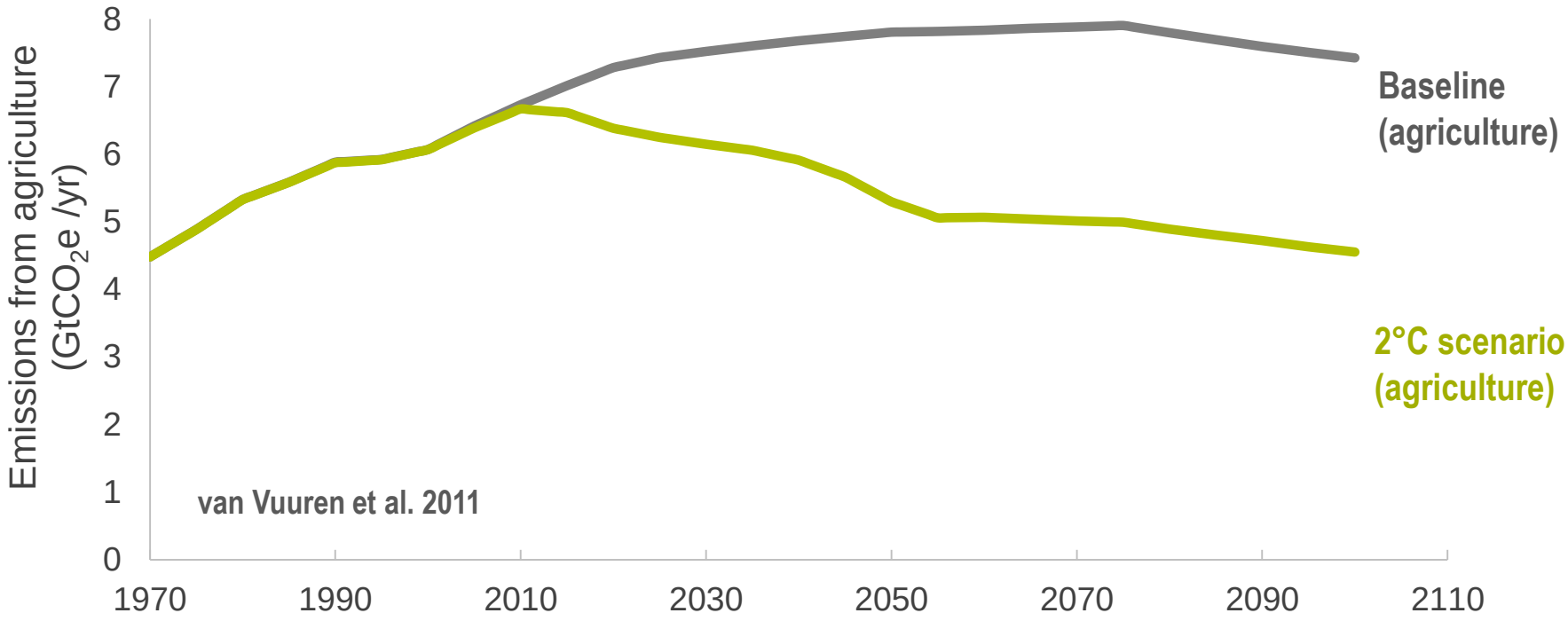
van Vuuren et al. 2011

2C context: Agricultural emissions will become an increasing portion of global emissions



(IMAGE model data)

2C context: different pathways possible for agricultural emissions



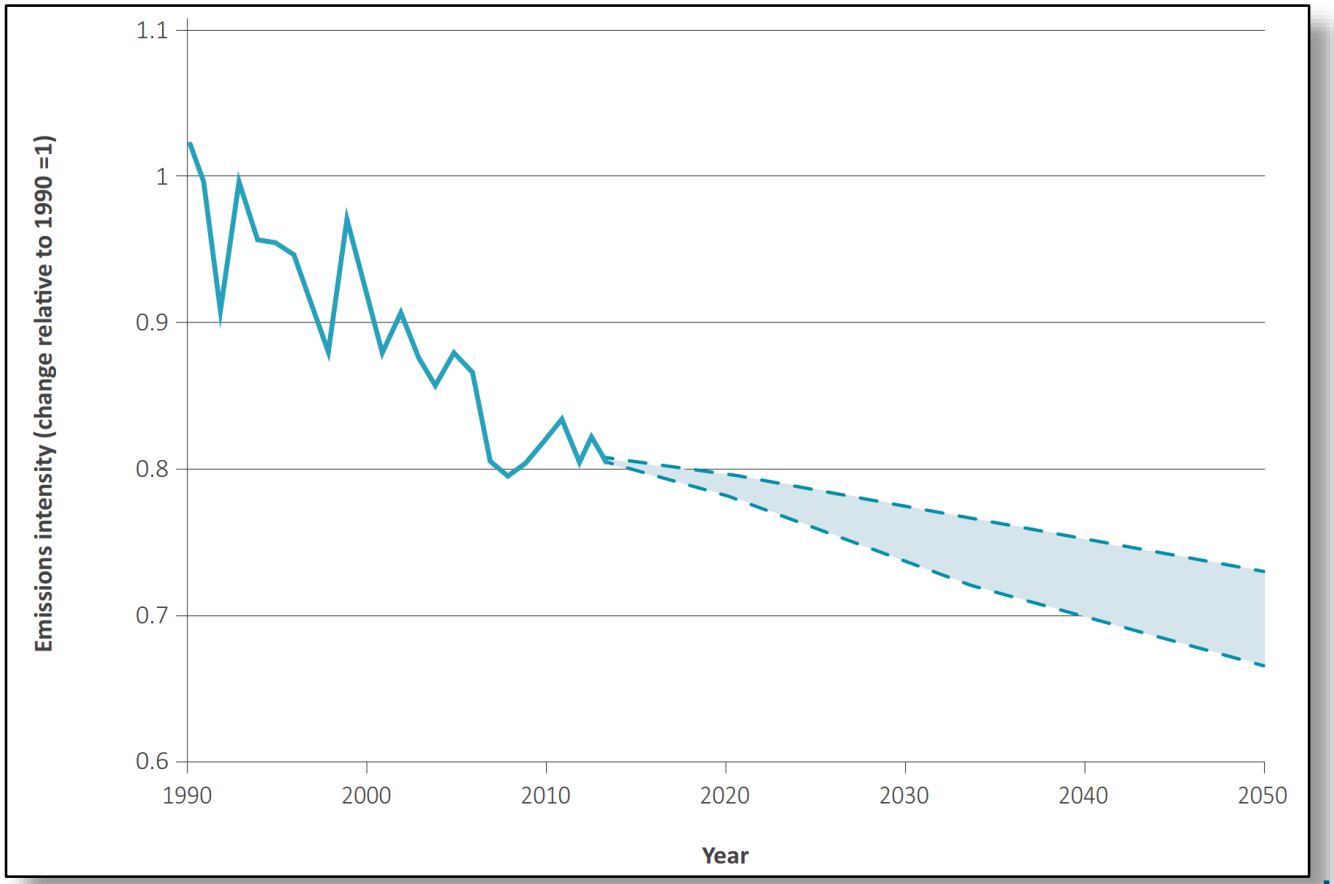
Year	2030	2050	2100
Reduction from BAU	-11 to -18%	-24 to -32%	-39%

Citation

Wollenberg E, Richards M, Smith P, Havlík P, Obersteiner M, Tubiello FN, Herold M, Gerber P, Carter S, Reisinger A, van Vuuren D, Dickie A, Neufeldt H, Sander BO, Wassman R, Sommer R, Amonette JE, Falcucci A, Herrero M, Opio C, Roman-Cuesta R, Stehfest E, Westhoek H, Ortiz-Monasterio I, Sapkota T, Rufino MC, Thornton PK, Verchot L, West PC, Soussana JF, Baedeker T, Sadler M, Vermeulen S, Campbell BM. 2016. Reducing emissions from agriculture to meet the 2°C target. Global Change Biology

Sustainable productivity gains improve agricultural emissions intensity

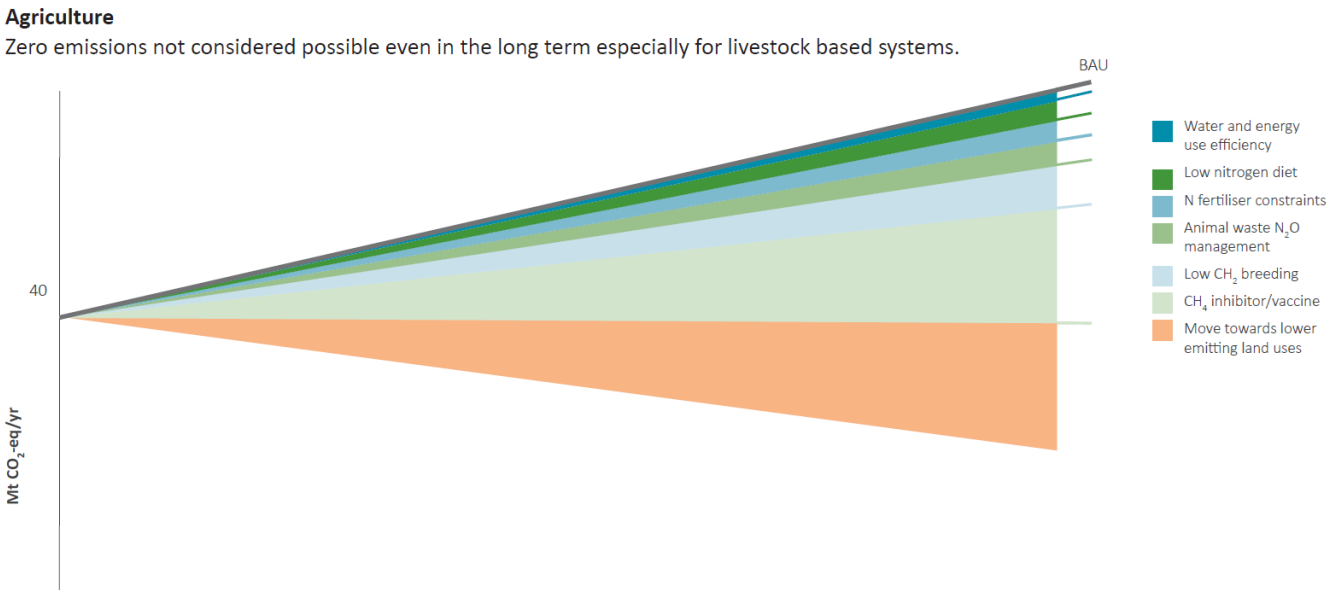
Intensity improvement since 1990 (CH4 and N2O only)



Research of fundamental importance to understand agricultural mitigation

- Enteric methane (rumen digestion): 4-5% of global emissions (35% of NZ emissions)
- Lead the development of the Global Research Alliance on Agricultural Greenhouse Gases (globalresearchalliance.org)
  - GRA charter: “increase cooperation and investment in research activities to help reduce the emissions intensity of agricultural production systems and increase their potential for soil carbon sequestration, and improve their efficiency, productivity, resilience and adaptive capacity, thereby contributing in a sustainable way to overall mitigation efforts, while still helping meet food security objectives.”
- Established national research centre: New Zealand Agricultural Research Gas Research Centre (nzagrc.org.nz)
- Currently four major areas of progress for enteric methane
  - Low emissions breeding
  - ‘Methane vaccine’
  - •Methane inhibitors
  - •Low methane forage
- GRA Global Rumen Census (globalrumencensus.org.nz):
  - 73 different organisations, 700 samples from 32 animal species and diverse breeds.
  - Conclusion: Methane producing microbes are common across all rumen species
  - **Fundamental implication: all rumens have same microbes (‘microbiome’), technologies will have global applicability**

Mitigation options for livestock agriculture



- Further increases in animal productivity
- New technologies that directly reduce emissions
- Constraints on the level and types of agricultural activity and movement away from ruminant production (in conflict with food security)

Other processes under the Convention that could benefit from greater understanding of agriculture

- 2018 facilitative dialogue on Article 4.1 of Paris Agreement
- Global stocktake under the Paris Agreement
- Multilateral assessment process under IAR and facilitative sharing of views
- LPAA -> MPAA
- NDC development and implementation
- Long-term low greenhouse gas emissions development strategies
- IPCC and the current special report
- Finance including GCF and GEF
- And many more…

Key points

- Paris Agreement provides framework for global action:
  - All Parties to prepare contributions every five years
  - Peak global emissions as soon as possible, rapidly reduce, and move to ‘balance’ emissions and removals in 2050-2100
  - “In a manner that does not threaten food production”
- Agricultural technologies and practices can enhance productivity in a sustainable manner, in line with 2C scenario
- Agriculture will have a different mitigation pathway than other sectors that are expected to reduce to zero
- SBSTA has a vital role in supporting Parties and UNFCCC process to understand these issues