Teagasc

AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

The Irish Agriculture and Food Development Authority

Sustainability in Irish Agriculture

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Teagasc
Agriculture and Food Development Authority

The Irish Agriculture and Food Development Authority

Overview

- Future Challenges
- Agricultural Sustainability
  - the Teagasc Contribution
- Overview of Indicators
  - Economic & Social
    - (incomes, longer term viability, life quality)
  - Environmental
    - (GHG, ammonia, water quality, biodiversity)
- Conclusions

Sustainability

- Sustainable growth has become a central issue
  - Regulatory requirement and marketing opportunity
- Means different things to different people
  - Environment
  - Economic
  - Social
- Need pragmatic balance between economic growth and environmental concerns
  - Concern for environmental targets
  - But also concern for life quality in rural Ireland

Agricultural Sustainability

- Sustainability
  - Optimising production with respect to multiple objectives
  - Relevant to individual farms and wider environment
- Indicators (Metrics)
  - Economic, Environmental, Social,
- Why?
  - Market drivers, international comparisons
  - Growing importance to food companies (point of difference)
  - International commitments, e.g. GHG, WFD, NECD
  - Ensure farming remains viable
  - Measurement can highlight good practice
    - areas in need of attention

GHGs Ammonia	Food Output	Farm Income	Land Mobility	Jobs	Productivity

Challenges to Agricultural Expansion

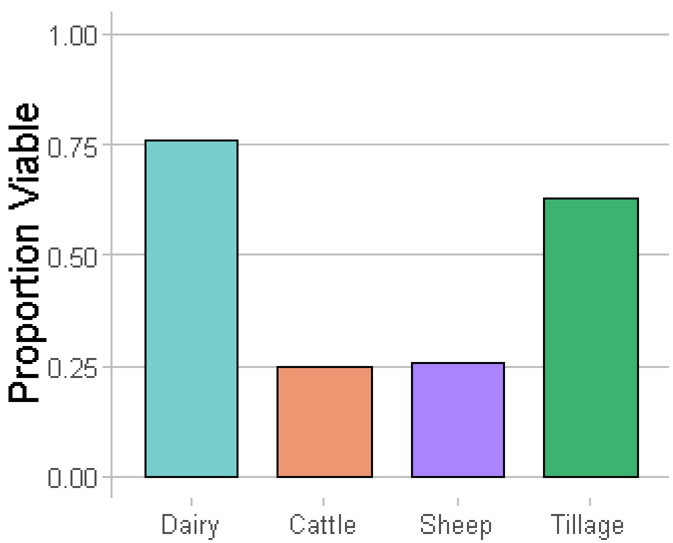
- **Food**wise 2025 - Increasing the value of Primary Production by 65% ... t €10 billion and create of an additional 23,00... dir... ...ri-food sector

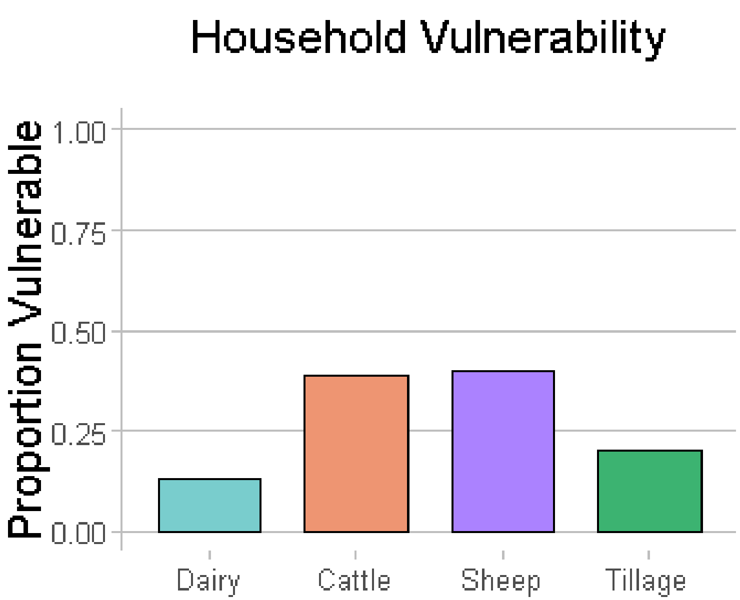
- E... ...0% reduction in GHG by 203...
- Effort Sha... ...ecision – Ireland has a 30% ta... 2030
- Ireland has to reduce emissions by 5% from 2030
- Maintain good water quality status

Economic and Social Sustainability

- Gross Output and Margin (per ha.)
- Family Farm Income (per labour unit)
- Market Orientation (% of output from market)
- Economic Viability
  - Ability to earn minimum wage, and 5+% return on investment

- High Age Profile
- Isolation Risk
- Hours Worked on Farm
- Household vulnerability
  - Lack of economic viability + no off-farm employment



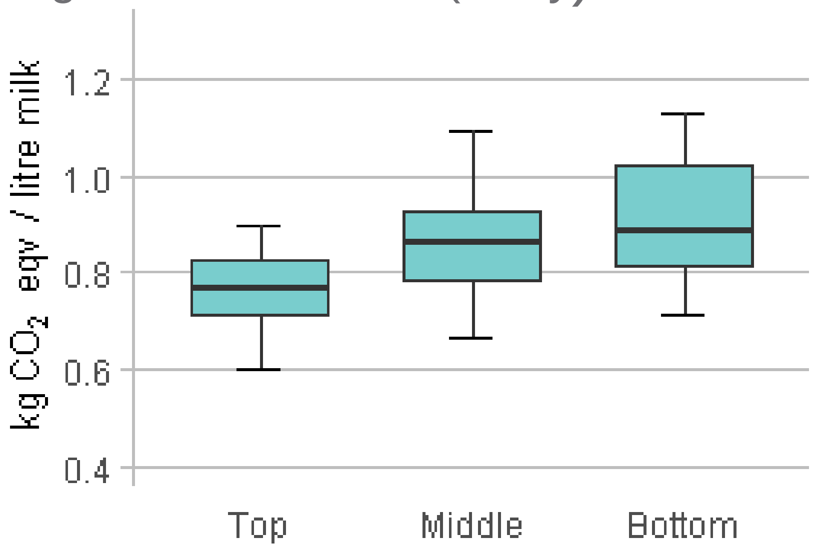


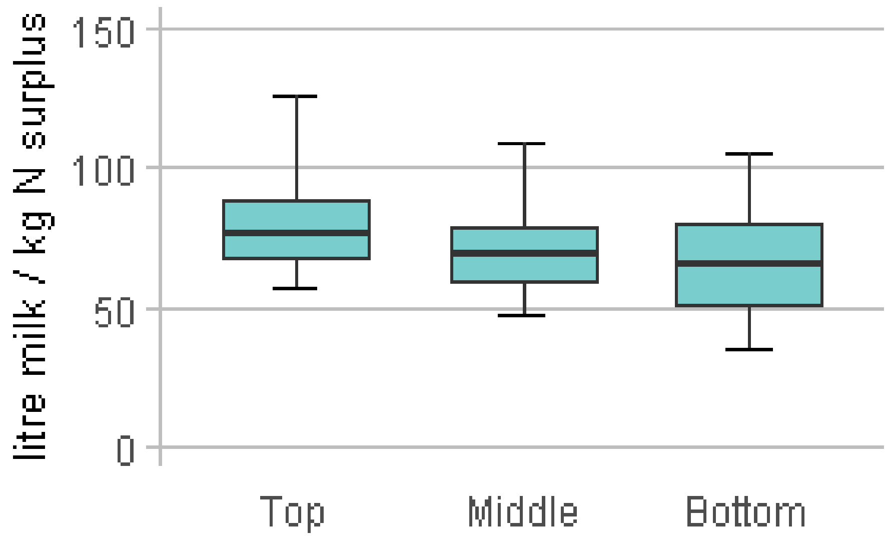
Agriculture a

GHG Emissions & N usage per Output

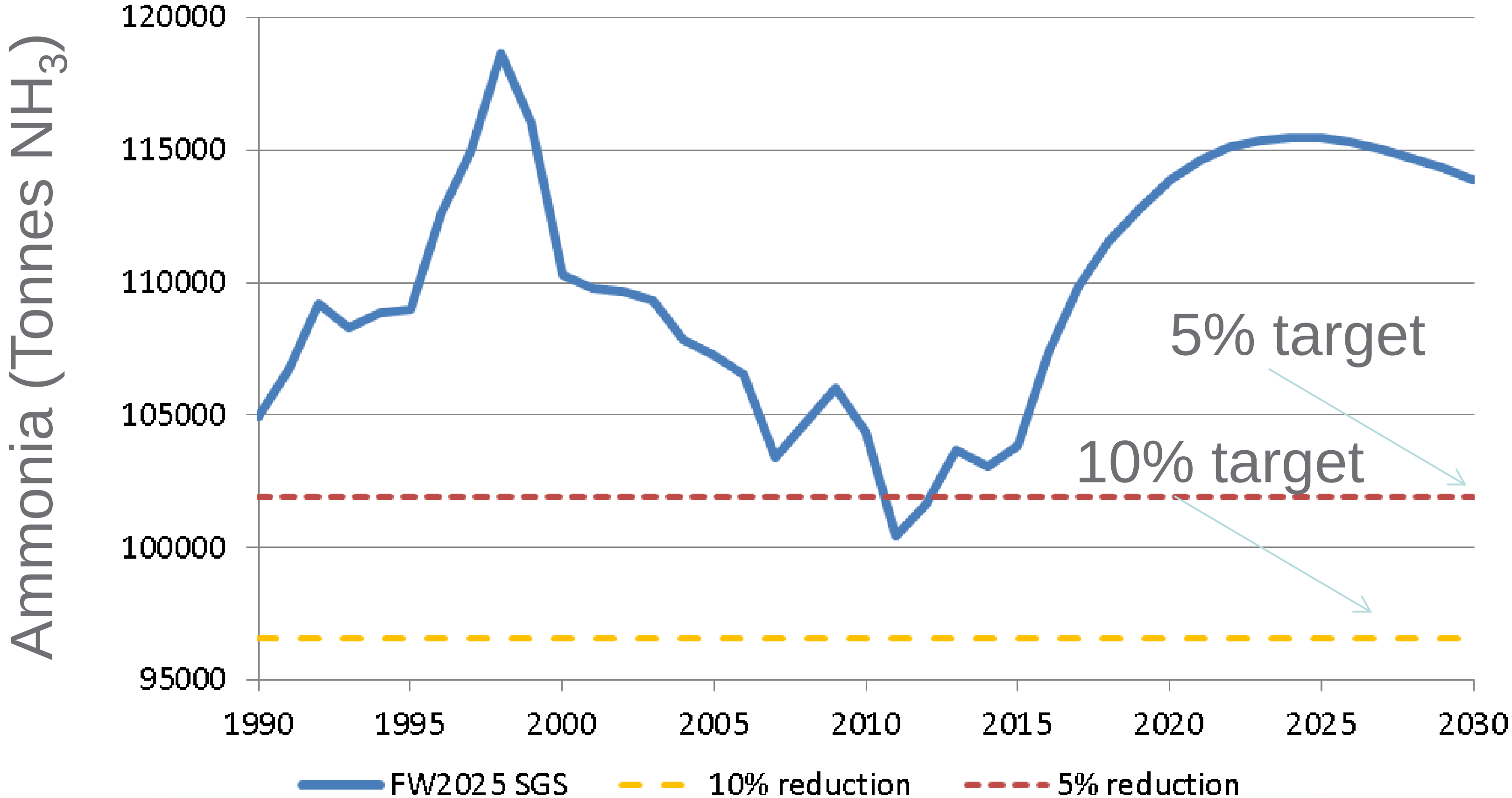
- Emissions efficiency of production important to highlight
- N balance critical for GHG, ammonia and water quality

Ag GHG Emissions (Dairy)

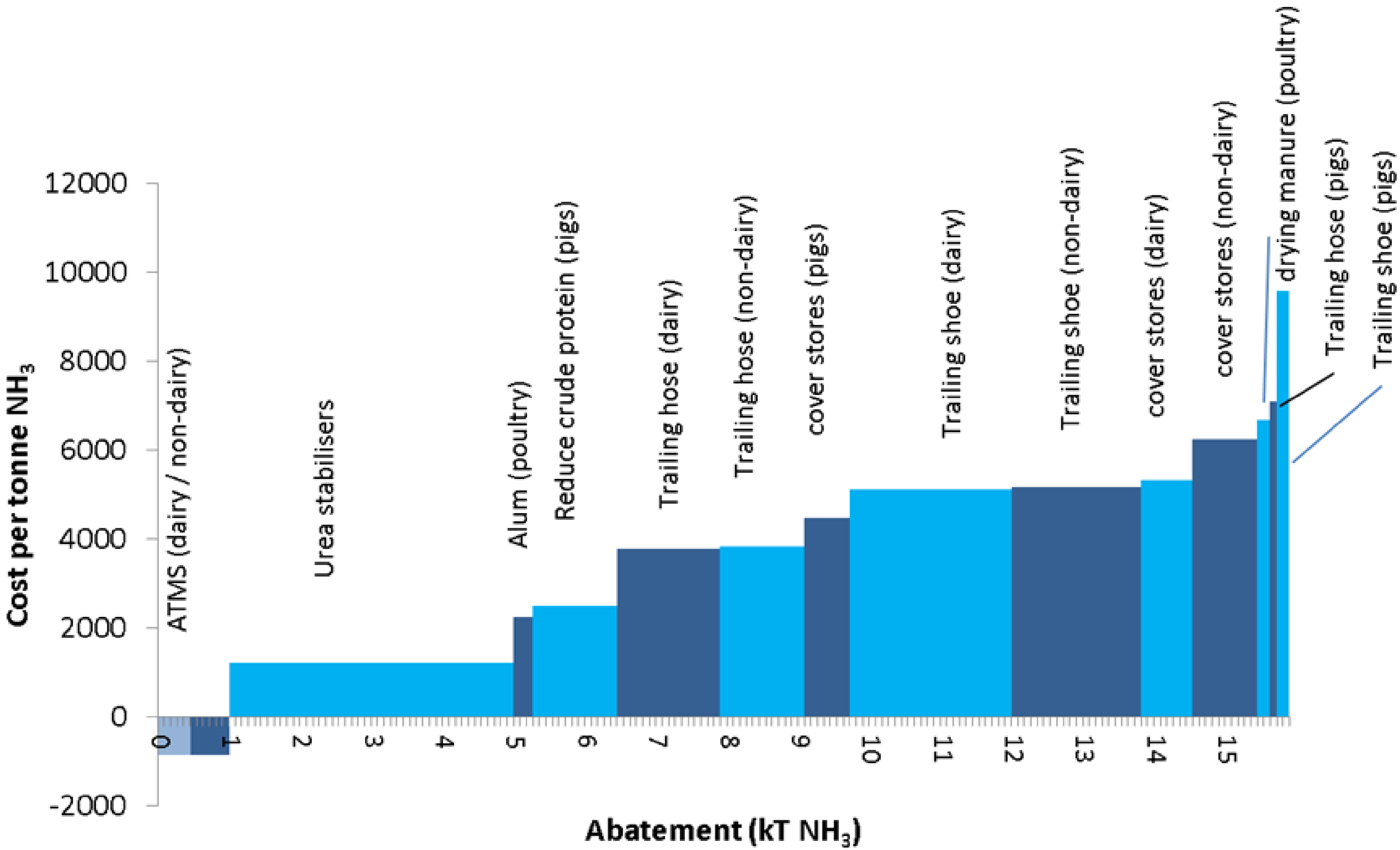




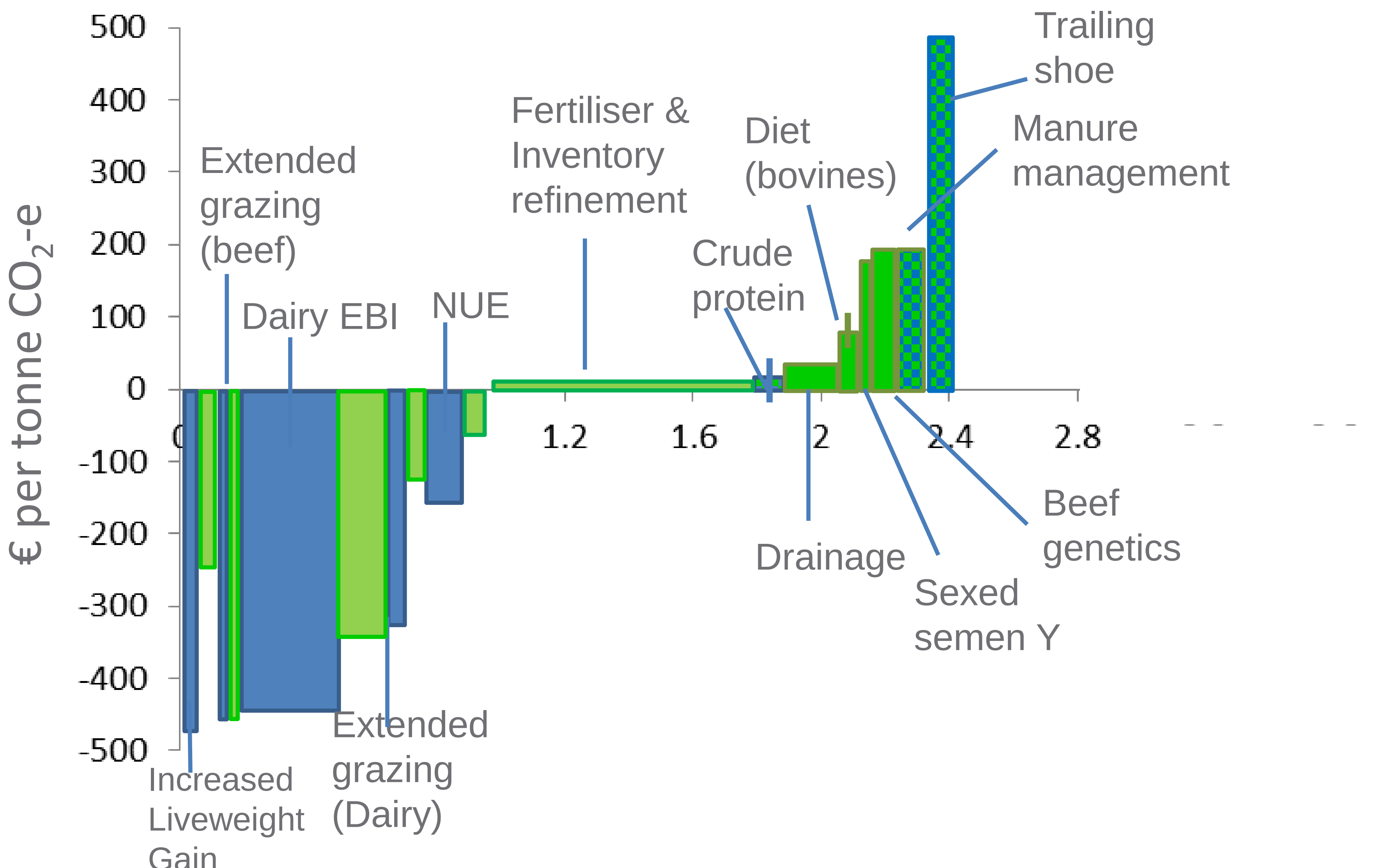
Ammonia emissions projections
(from 2015-2030 based on FW 2025 SGS Scenario)



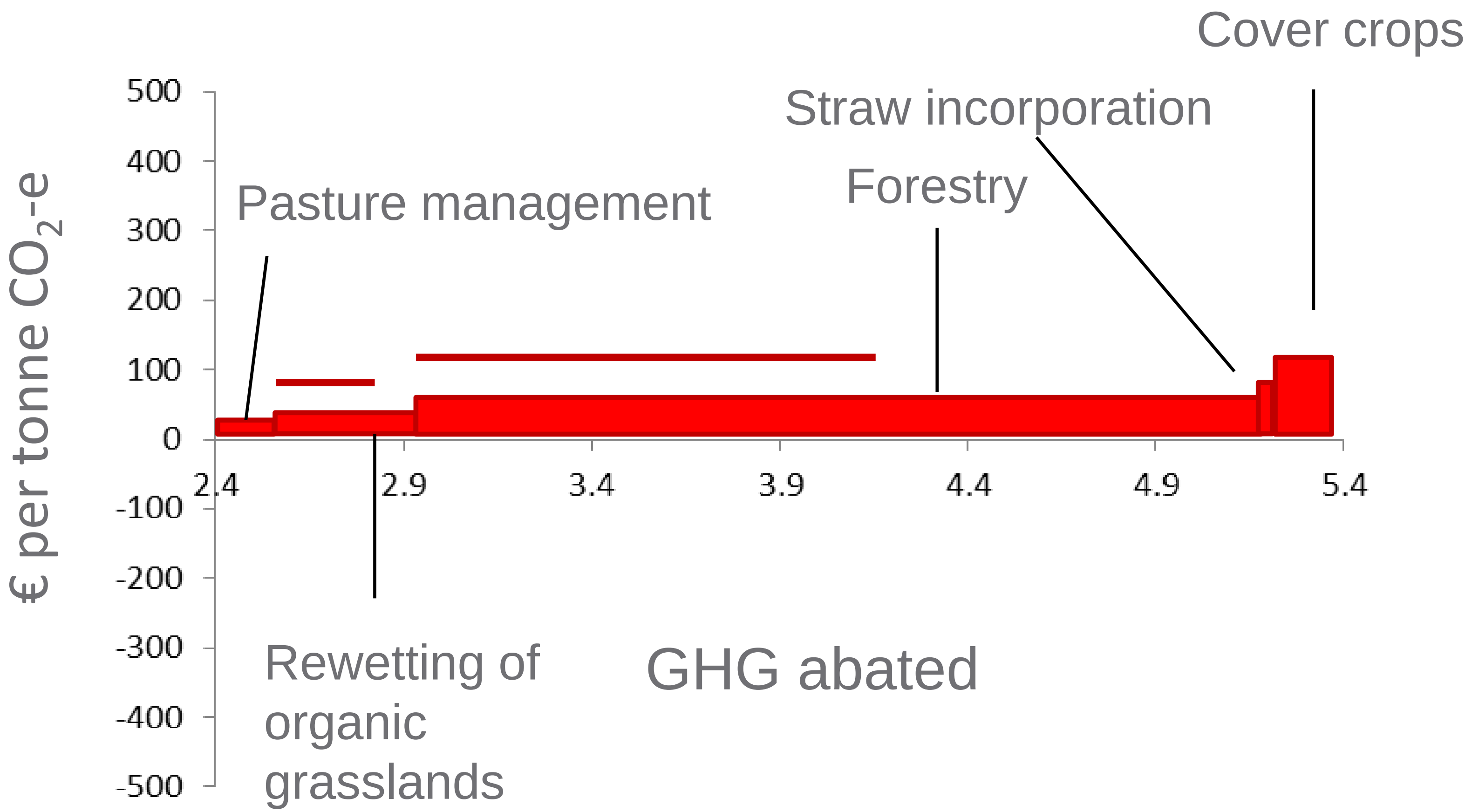
Ammonia MACC



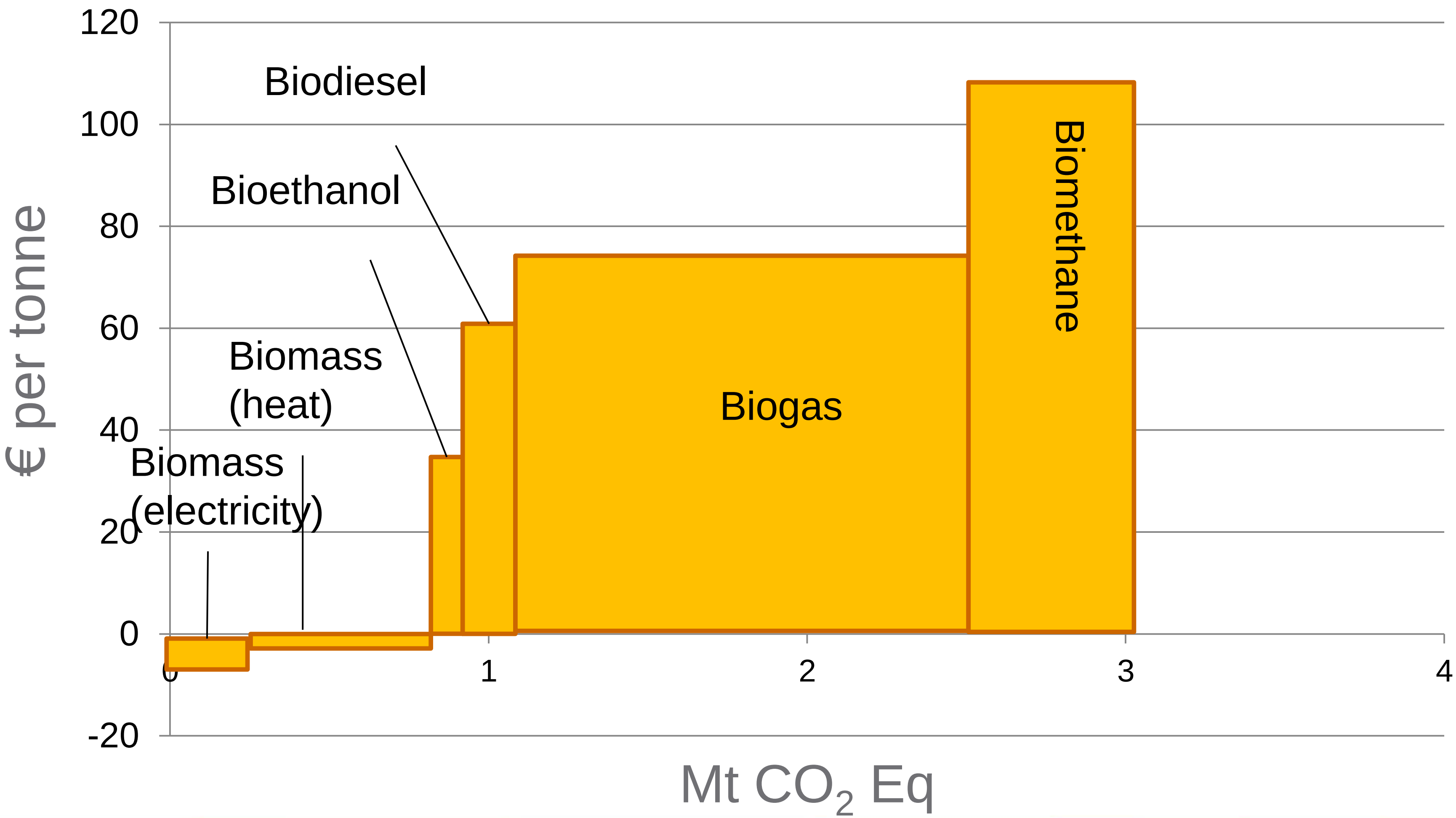
MACC (2013-2030)



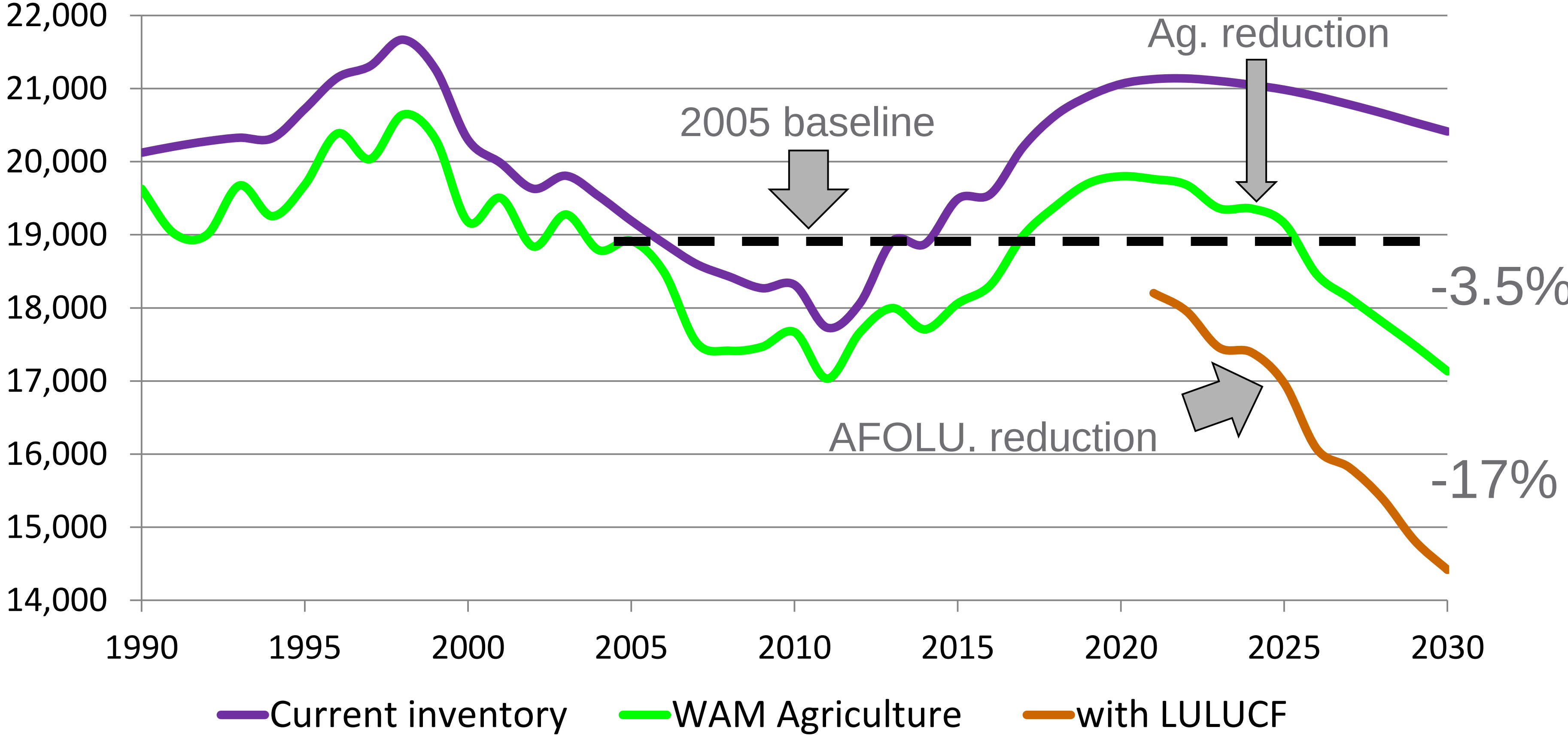
LULUCF MACC (Mean 2021-30)



Displacement of fossil fuels



Emission Paths and mitigation impact

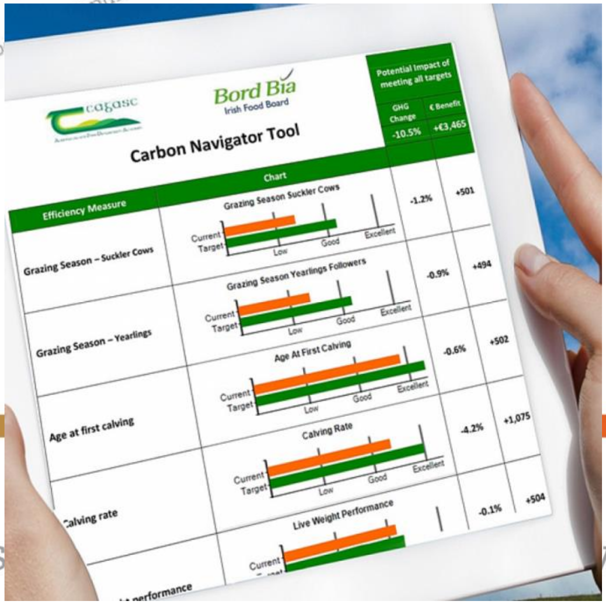


Conclusions

- The cumulative ammonia abatement potential for FW2025 is 12.05 kT NH_3
- This represents a 5.6% reduction by 2030
- It should be noted that these reductions represent the **maximum biophysical abatement**
- The total costs associated with this reduction are 35.6 million per annum.
- Max. potential to reduce GHG agricultural emissions
  - By 2030 **9%** below the 2005 level if everything was applied at once
- Assuming linear uptake means emissions reduction of
  - **3.5**% below 2005 level by 2030
- In milk production emissions intensity will decrease by **15- 25%**
- Further mitigation from land-use change and land mgt
  - Land use change **3 Mt CO_2e (with ag = 17.5% reduction)**
  - Fossil fuel displacement > **3 Mt CO_2e Total Cost = 78 M euro pa**

- **Adoption is key – Knowledge Transfer via advisory services, demonstration farms and BETTER farms**

Knowledge Transfer is the Key



Acknowledgments

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HORIZON 2020

Walsh Fellowships Programme

SEVENTH FRAMEWORK PROGRAMME

FBD