



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

The Irish Agriculture and Food Development Authority

Greenhouse gas emissions from livestock systems: Irish perspectives on a global issue

Paul Crosson

Seminar: Reductions of GHG-emissions from livestock production

Ski, Norway, 7 February 2018

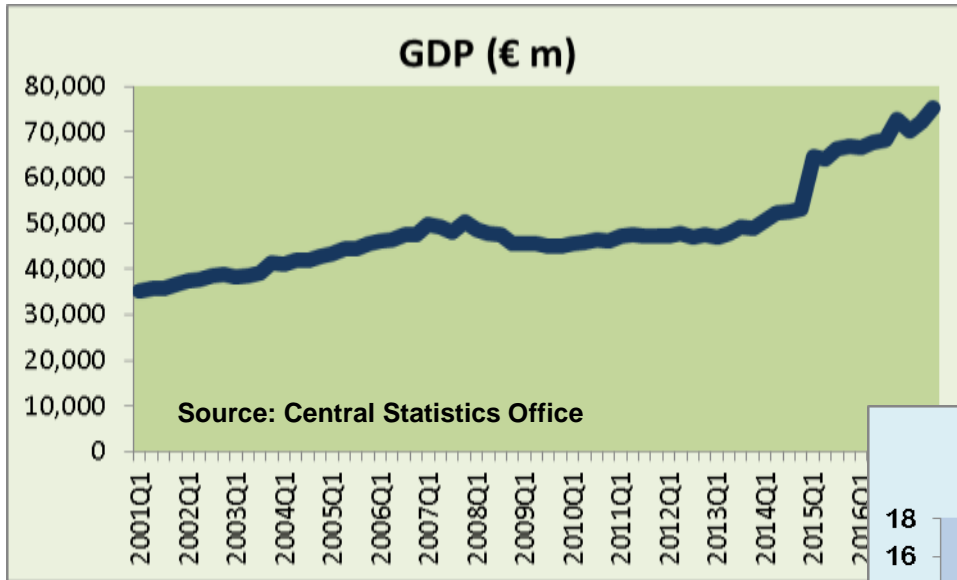
Presentation overview

- Irish agriculture - an overview
- GHG policy context – global, EU and Irish
- Development of a national GHG mitigation programme

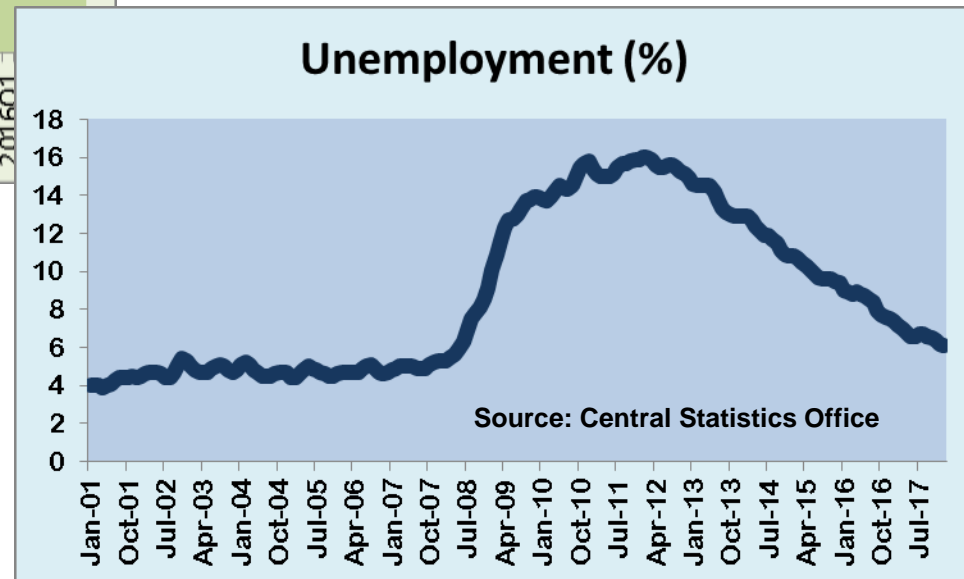
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Irish economy has rebounded strongly



- **GDP increased 2001 to 2007, decreased during the financial crisis & is now growing rapidly**



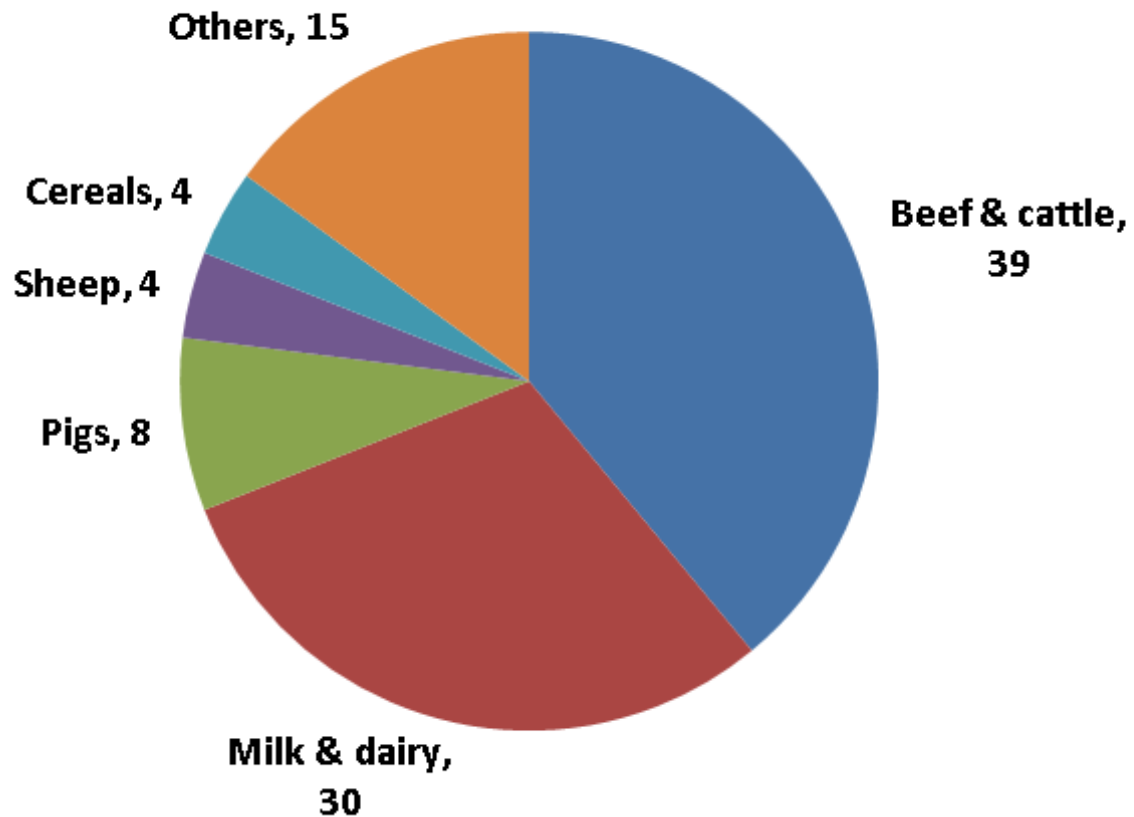
- **Unemployment increased from 4.5% in 2005 to 16% in 2010 and is now at 6%**

Agriculture continues to play an important role

Key Indicators for Primary and Agri-Food Sectors		
	Primary Sector ²	Agri-Food Sector ³
% of GVA at factor cost (2014)	2.4%	7.6%
% of employment (2015 average)	5.5%	8.4%
% of merchandise exports (2015 ⁴)	7.0%	10.7%

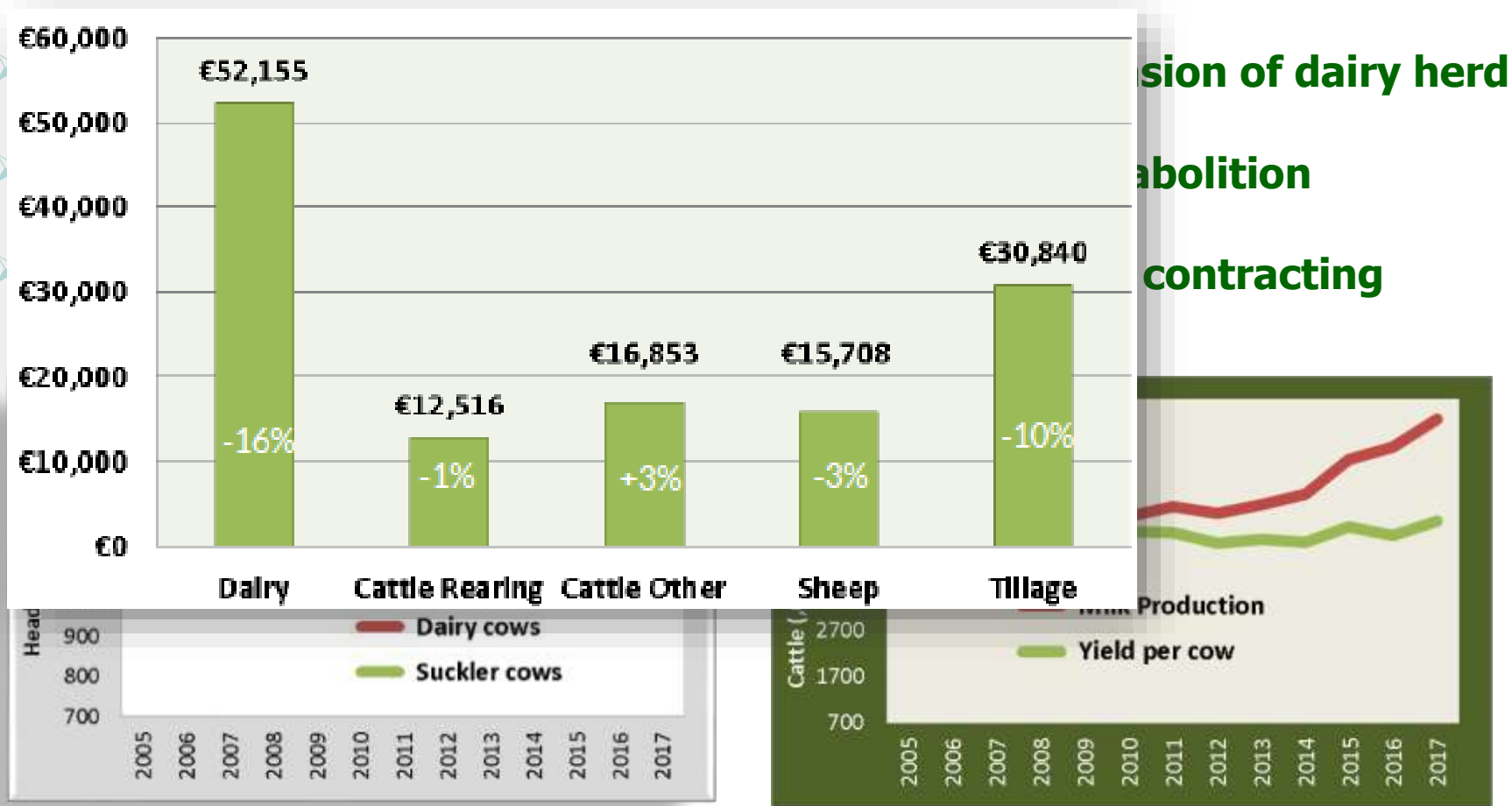
- **Agriculture accounts for**
 - 24% of industry turnover
 - 22% of industry gross output

A pasture-based agri-industry



Source: Irish Dept Agr, Fisheries and the Marine; Central Stats Office

Surge in dairy production



Reduction of dairy herd
abolition
contracting

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Policy Actors



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11

- **Limit global temperature increase to 1.5°C**
- **EU commitment: -40% by 2030 relative to 1990**

Policy Actors

Low-carbon strategy for 2050

Targets compared to 1990 levels



Game changer – EU council decision Oct 2014

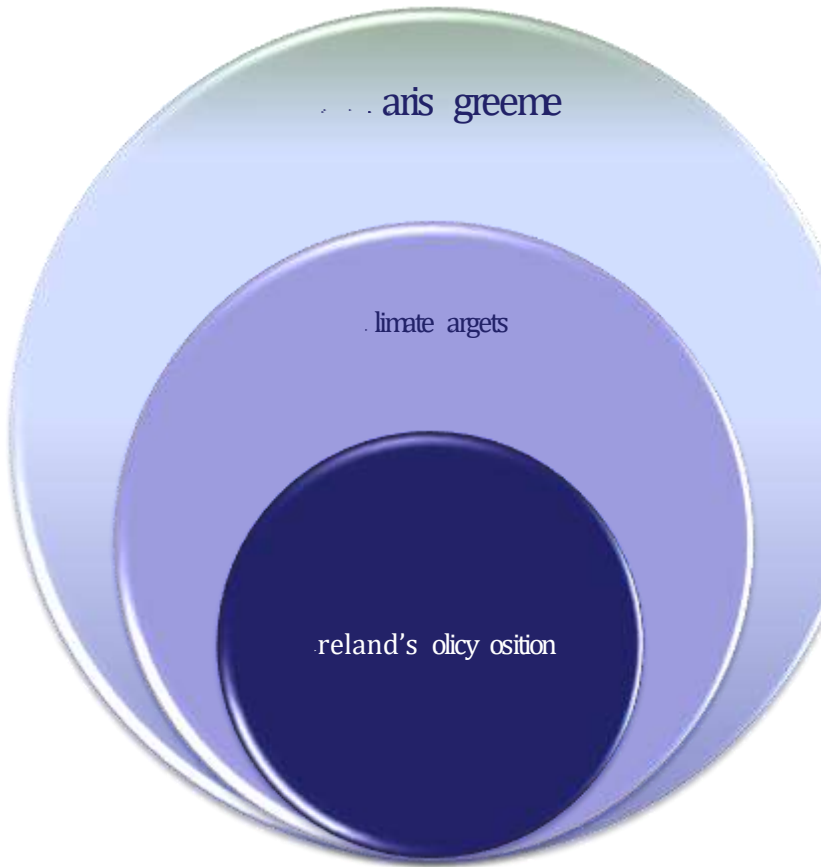


European Council

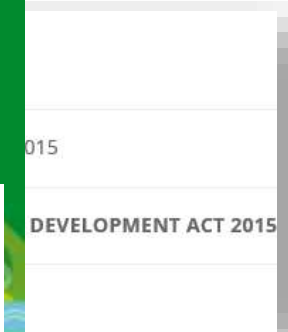
Brussels, 24 October 2014

2.14 the multiple objectives of the agriculture and land use sector, with their lower mitigation potential, should be acknowledged, as well as the need to ensure coherence between the EU's food security and climate change objectives. The European Council invites the Commission to examine the best means of encouraging the sustainable intensification of food production, while optimising the sector's contribution to greenhouse gas mitigation and sequestration, including through afforestation. Policy on how to include Land Use, Land Use Change and Forestry into the 2030 greenhouse gas mitigation framework will be established as soon as technical conditions allow and in any case before 2020.

Policy Actors

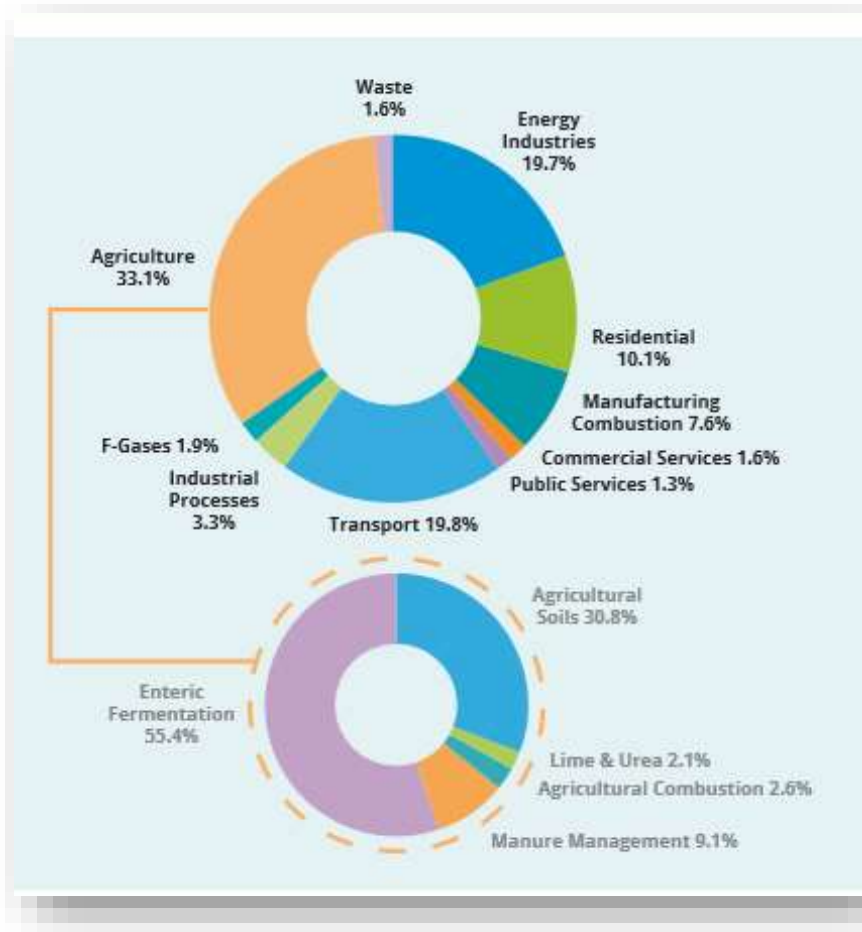


Position 2014
ns by 80% by 2050



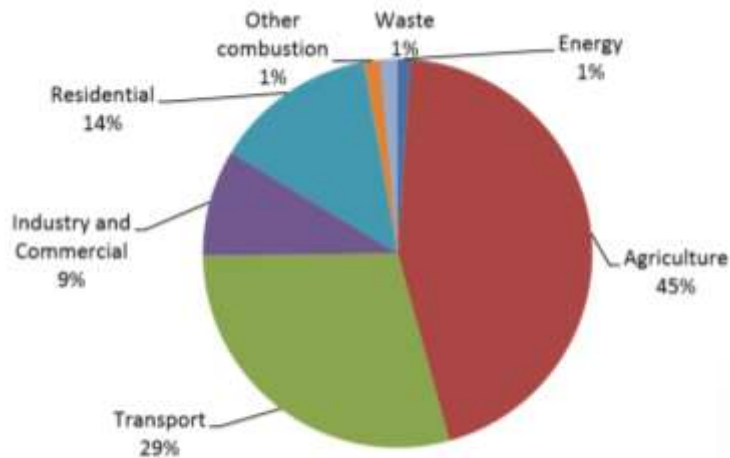
ment of a mitigation
plan and an adaptation framework

Ireland's agricultural GHG emissions profile



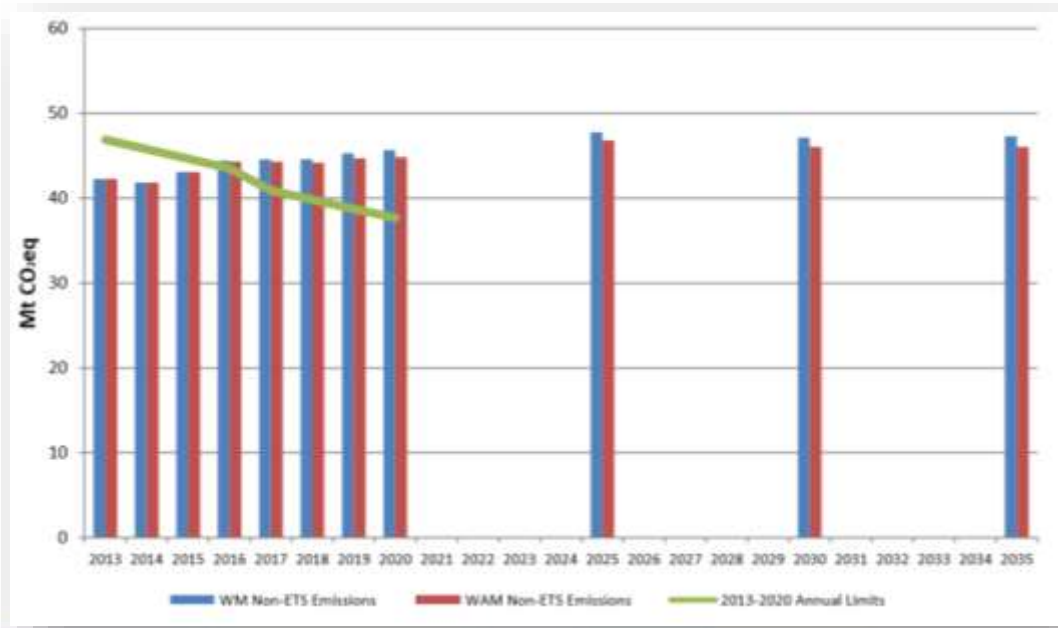
- Emissions 5%-6% below 1990 levels while output has increased substantially

Specific Challenges for Ireland

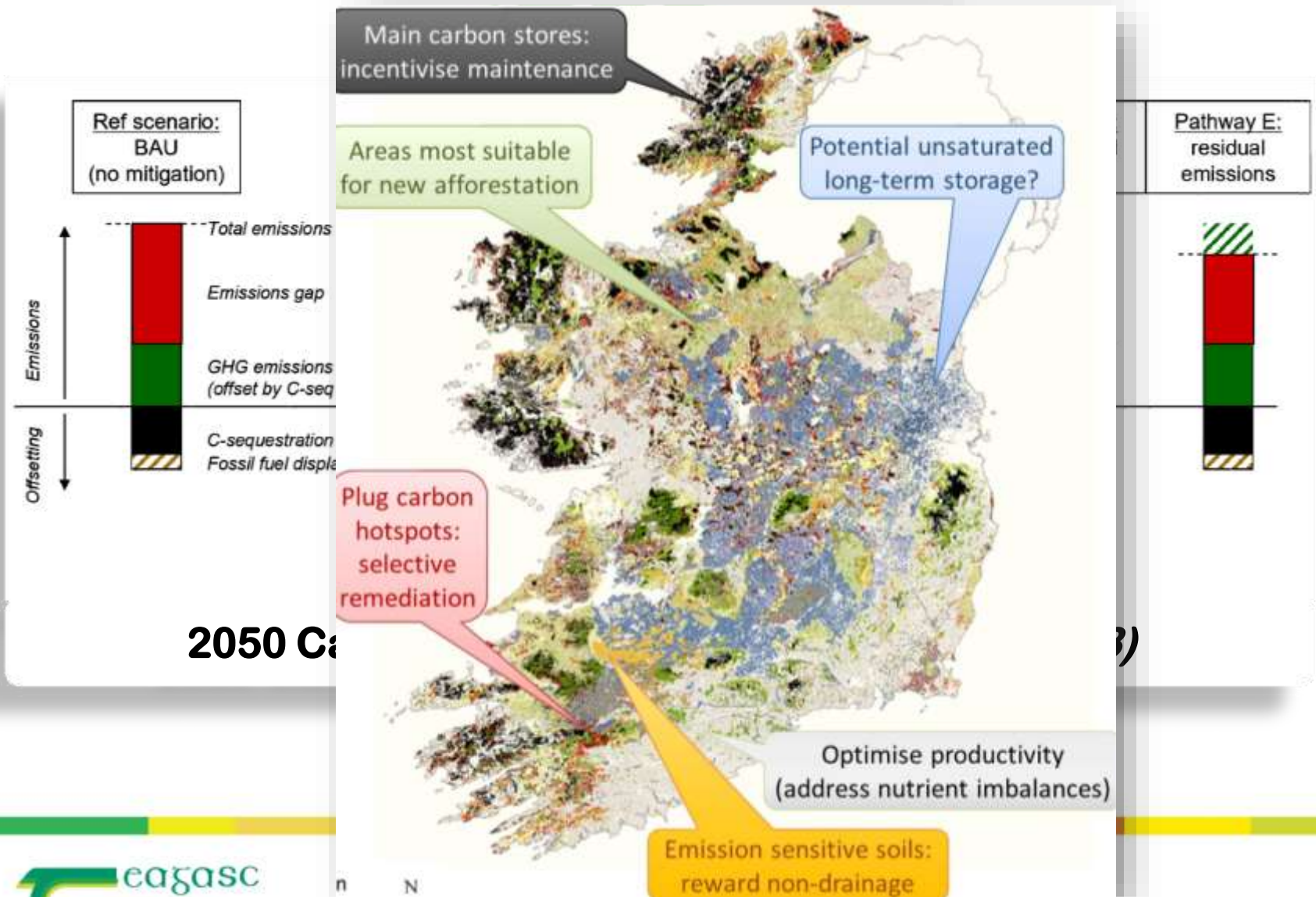


➤ **Agricultural emissions account for 45% of non-ETS sector**

➤ **Emissions from agriculture projected to be 4%-6% below 2005 levels by 2020 (target -20%)**



Land-based solutions?



Public perception?



GREEN NEWS.ie

THE IRISH TIMES

Mon, Feb 5, 2018

NEWS

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OPINION

LIFE & STYLE

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Environment > Heritage & Habitat | Illegal Dumping | Water Charges

Call for radical change in farming methods to tackle climate challenge

- **89% of the members recommended that there should be a tax on agricultural emissions.**

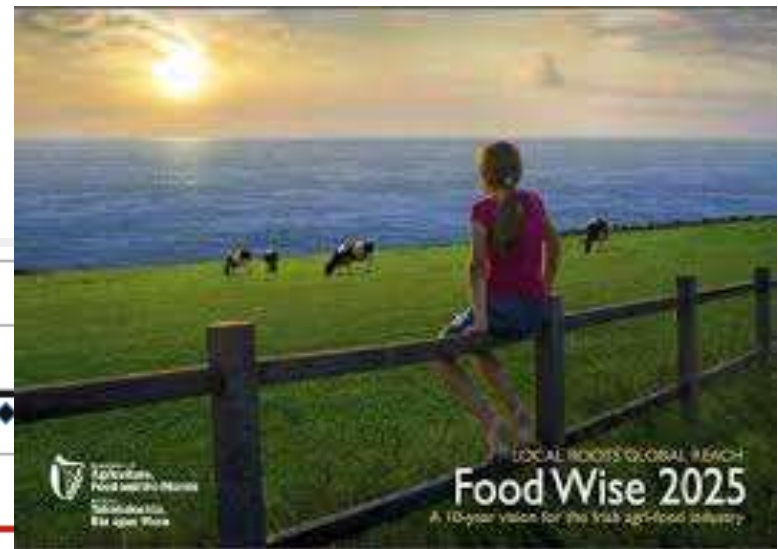
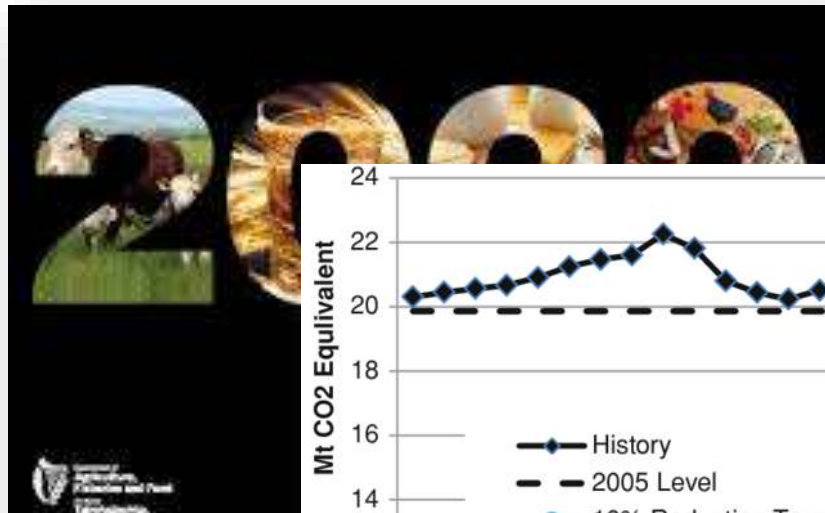
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Environmental NGO opens first-ever climate case against Irish Government

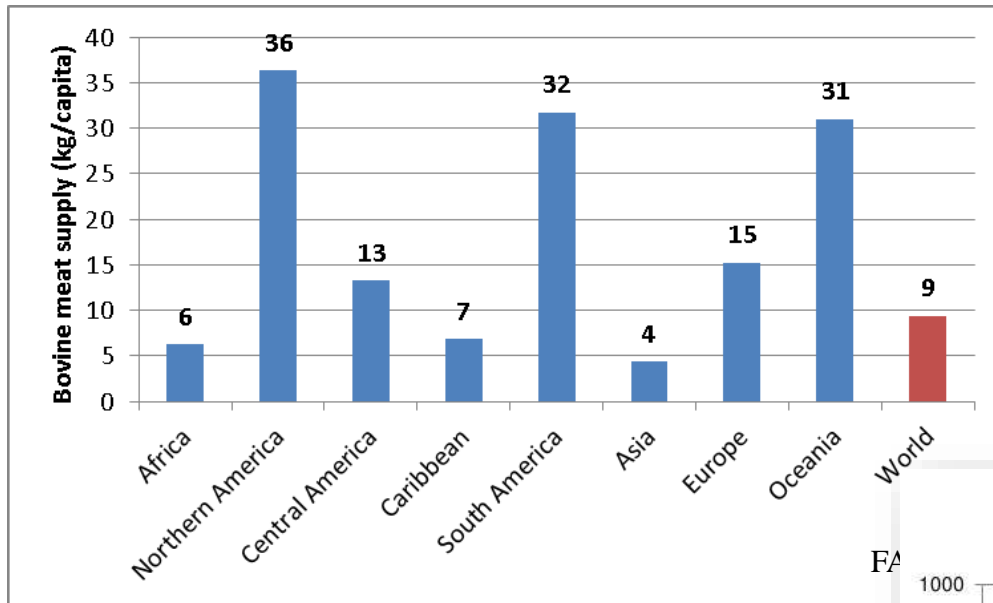
Government remains committed to agriculture

- **Food Harvest 2020: increase in milk output 50% & beef value 40%**
- **Food Wise 2025: 65% increase in primary production**



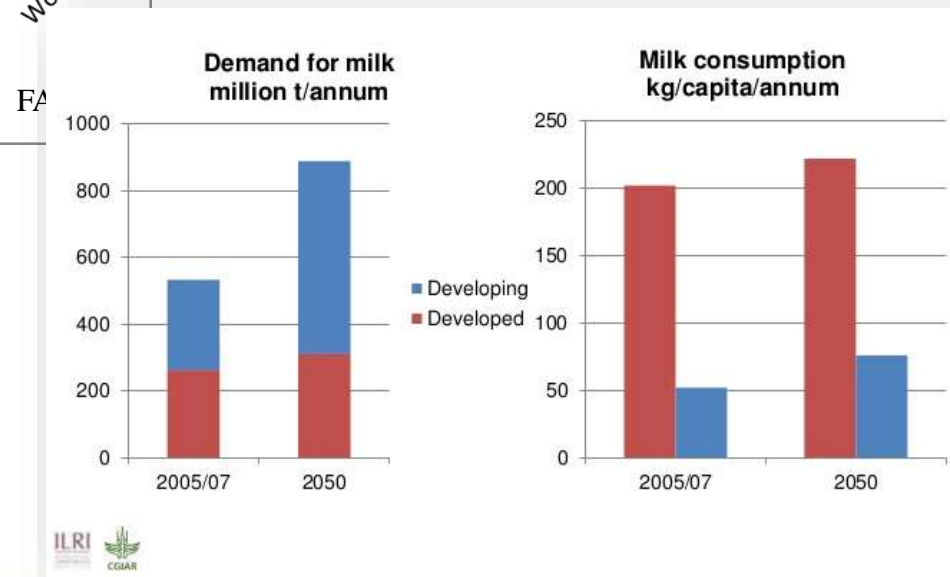
- **National mitigation plan endorses Teagasc's Carbon Neutrality Report**

Why grow the Irish dairy and beef industries

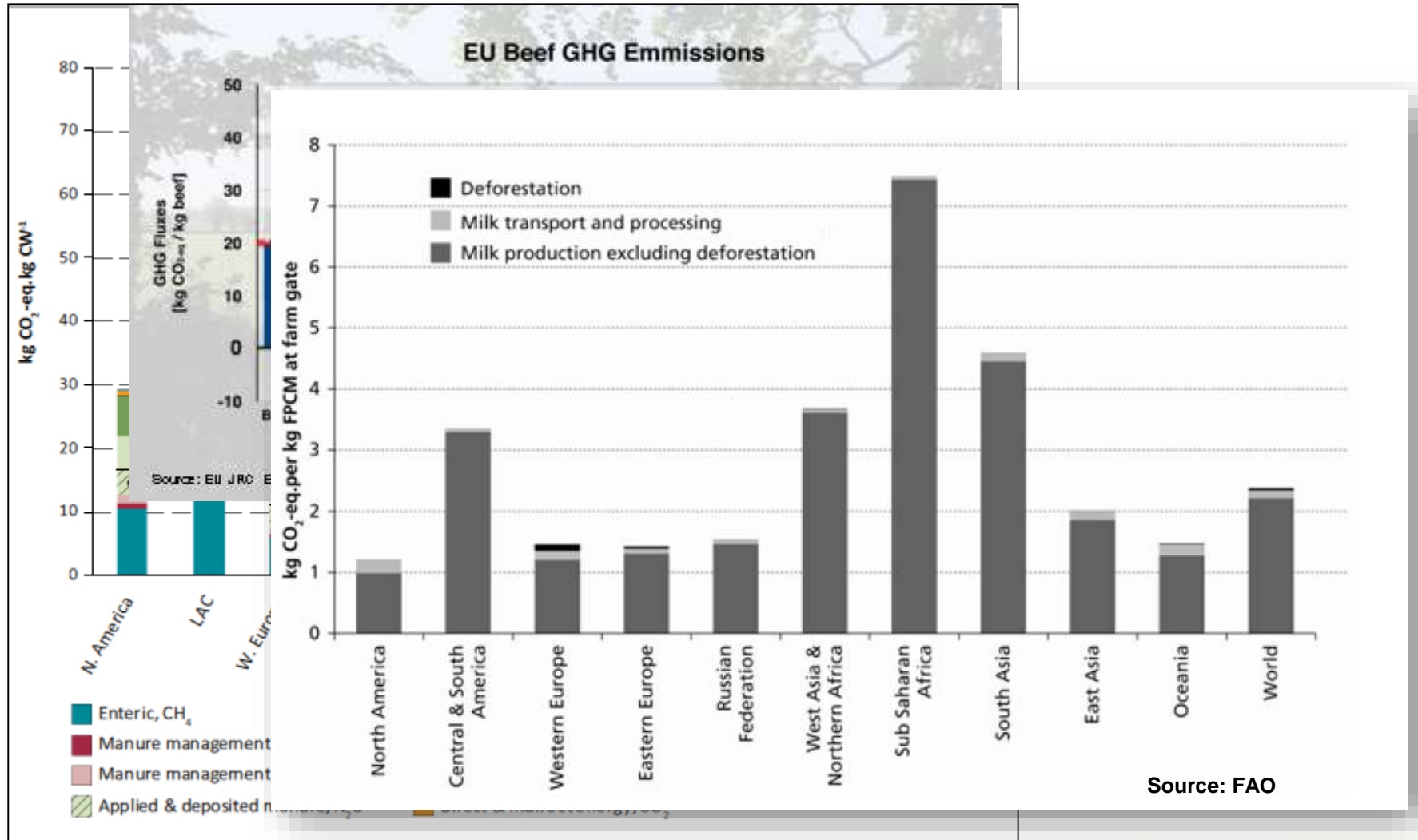


- Average supply of ~9 kg/capita & consumption of ~6 kg/capita
- Projected increase of 73% in meat demand by 2050

- Projected increase of 80% in dairy demand by 2050



As a major exporter, “carbon leakage” is likely

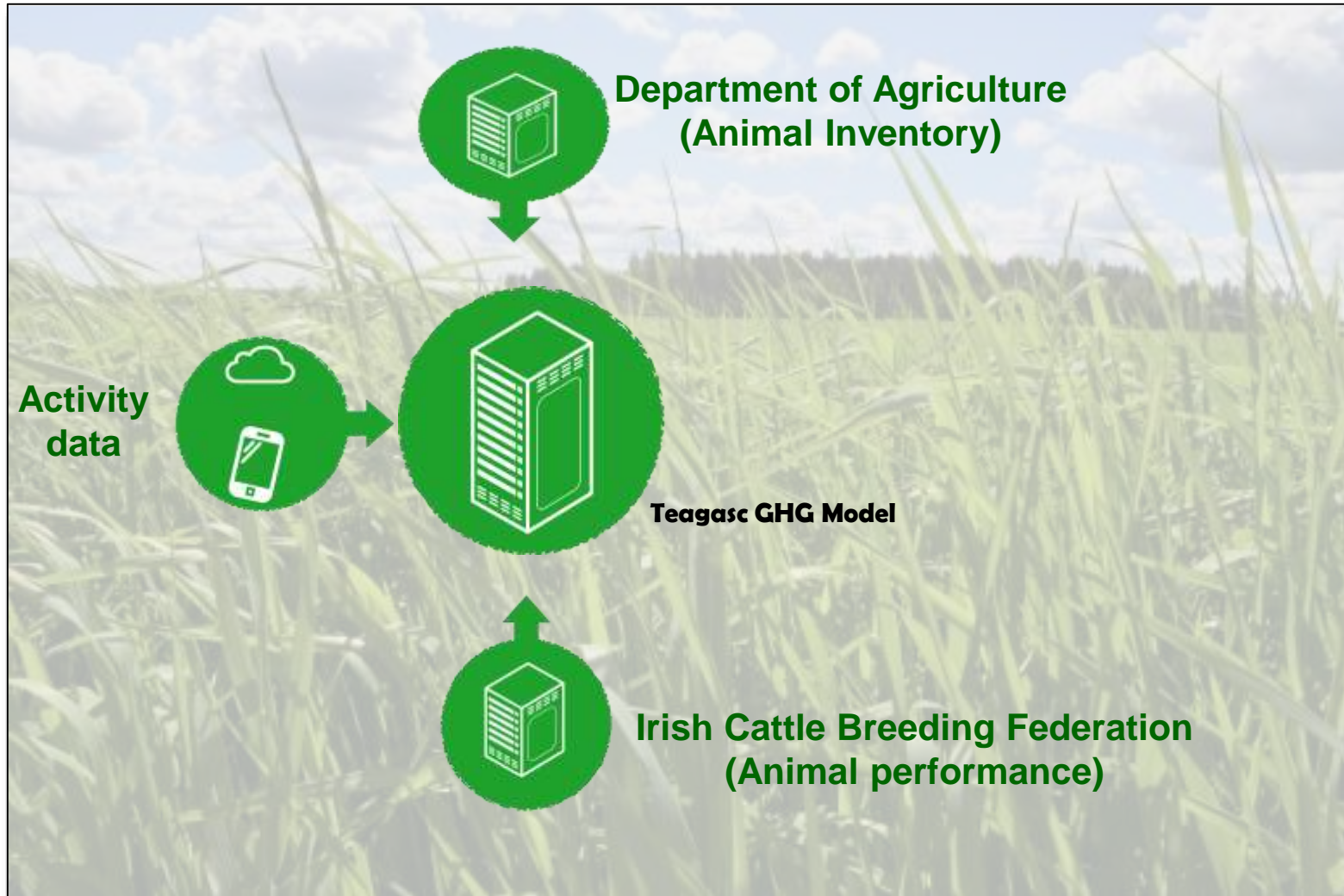


Presentation overview

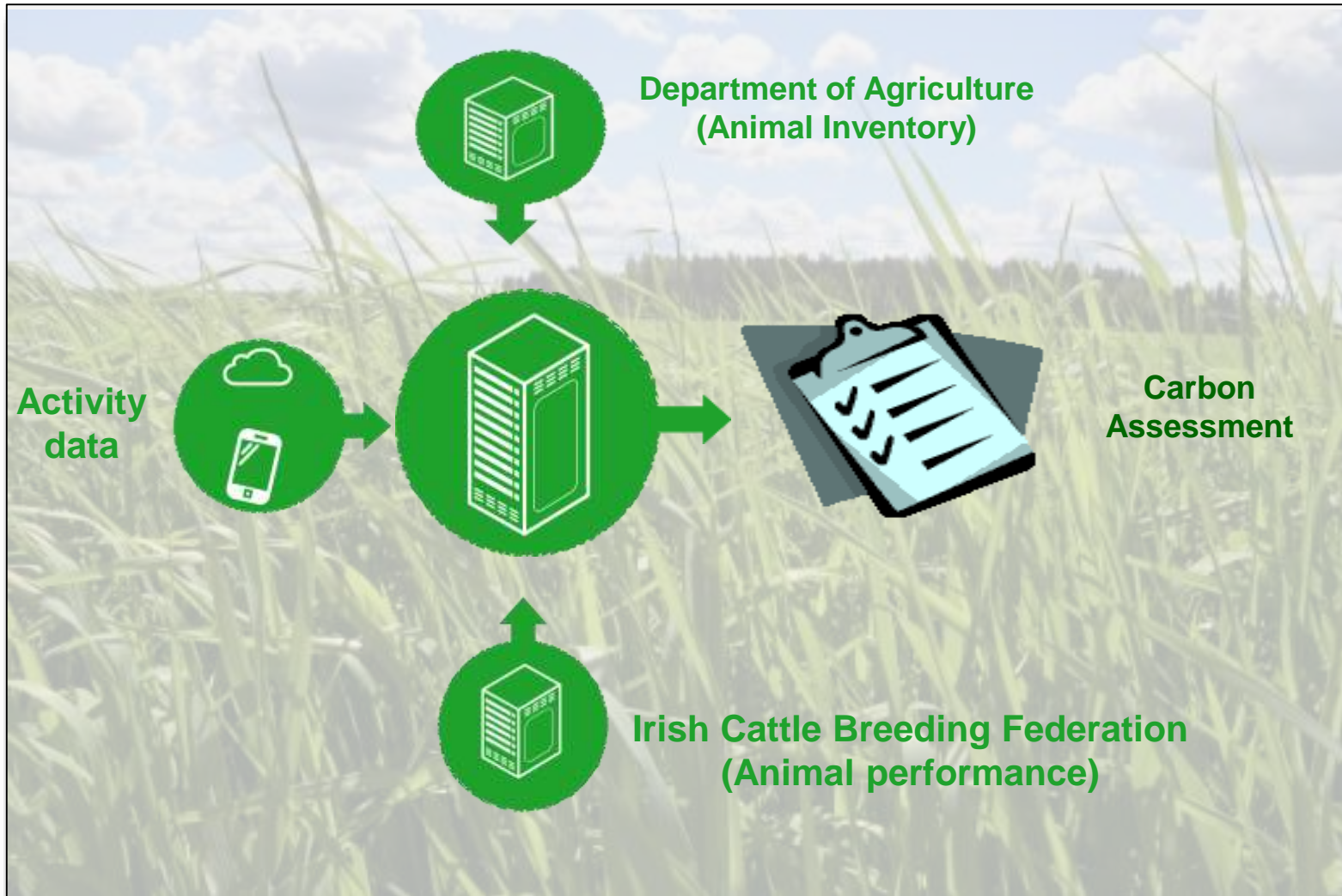
- Irish agriculture - an overview
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- **Development of a national GHG mitigation programme**

<https://www.youtube.com/watch?v=xtxwmfNwieM>

National integrated approach

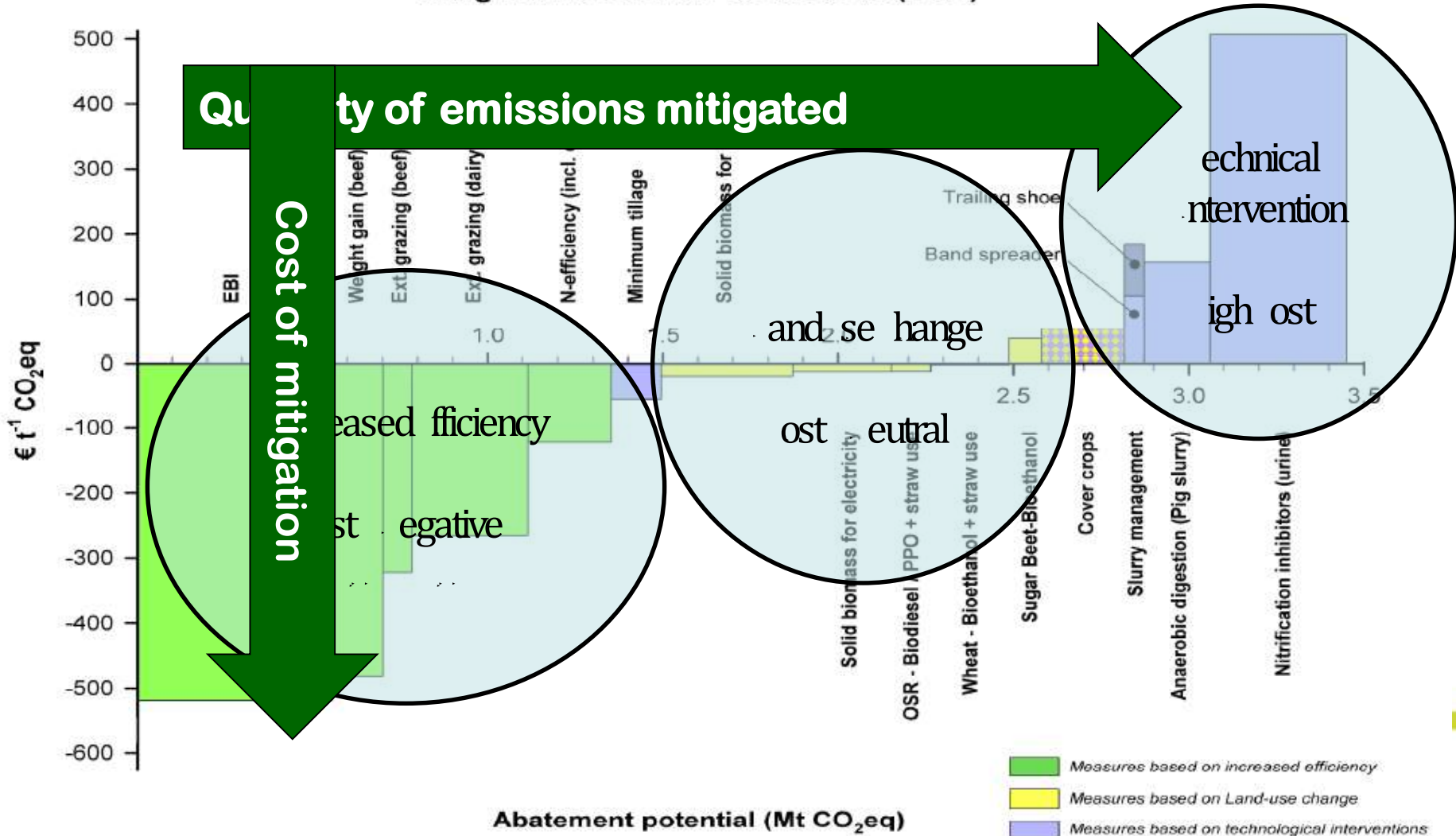


National integrated approach



Step 2 – Assess economics of mitigation

Marginal Abatement Cost Curve (LCA)



Step 3 – Reduce emissions. Carbon Navigator

- To mitigate emissions and increase awareness

Practical measures: GHG mitigation and profitable

1. Grazing season length
2. Age at first calving
3. Calving interval
4. Daily live weight gain
5. Nitrogen fertiliser efficiency
6. Manure management

Carbon Navigator

➤ To mitigate emissions and increase awareness

Practical measures: GHG mitigation and profitable

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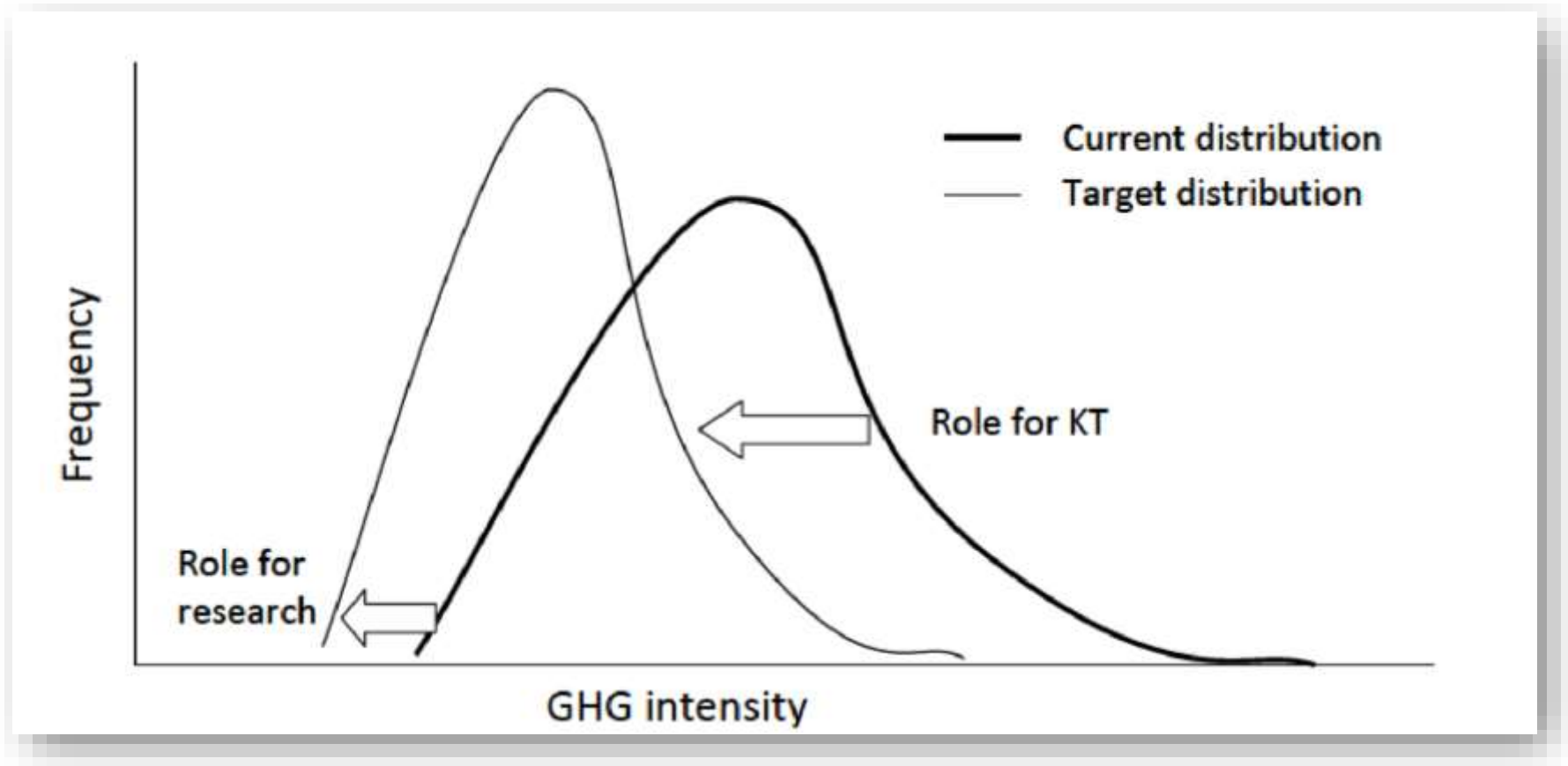
Set targets with advisor

Review current & potential performance

Potential GHG & € benefits

Efficiency Measure	Current	Target	Chart	GHG Change	€ Benefit
Age at first calving	28 mths	27 mths	<p>Age At First Calving</p> <p>Current: 28 mths Target: 27 mths</p> <p>Performance levels: Low, Good, Excellent</p>	-0.6%	+502

Research & Extension critical – example of dairy industry



Take home messages

Leverage points for improving global food security and the environment

Paul C. West,^{1*} James S. Gerber,¹ Peder M. Engstrom,¹ Nathaniel D. Mueller,²
Kate A. Brauman,¹ Kimberly M. Carlson,¹ Emily S. Cassidy,³ Matt Johnston,¹
Graham K. MacDonald,¹ Deepak K. Ray,¹ Stefan Siebert⁴

“One goal for achieving food security is to grow more food on the existing land base in ways that limit additional pressure on natural ecosystems...”

- **Agriculture plays a key role in the Irish economy**
- **Dairy industry growing; strong commitment to sustainable development with a focus on land use policy**
- **GHG emissions targets will be challenging – short term will be missed**
- **Continued commitment to the agri-food sector but...**

“The agricultural sector urgently needs to step up to the plate when it comes to meeting the COP21 targets. Clear and measurable targets will be built into the national CAP action plans, and failure to meet them will result in penalties.”

EU Commissioner for Agriculture, Phil Hogan

Go raibh maith agaibh

