

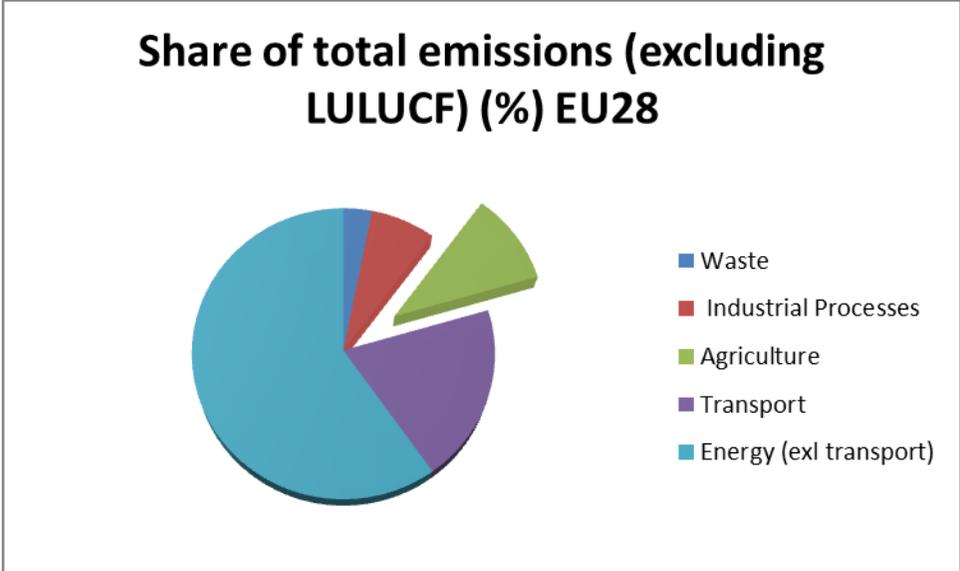
Ricardo-AEA

Introduction to policies and measures in the agriculture sector

Hugh Martineau – Principal Consultant (Agriculture)

Presentation overview:

- EU Agricultural emissions overview
- Challenges associated with cutting emissions from agriculture
- Review of measures
- Marginal Abatement Cost Curve
 - Irish example
- Implementation mechanisms and challenges

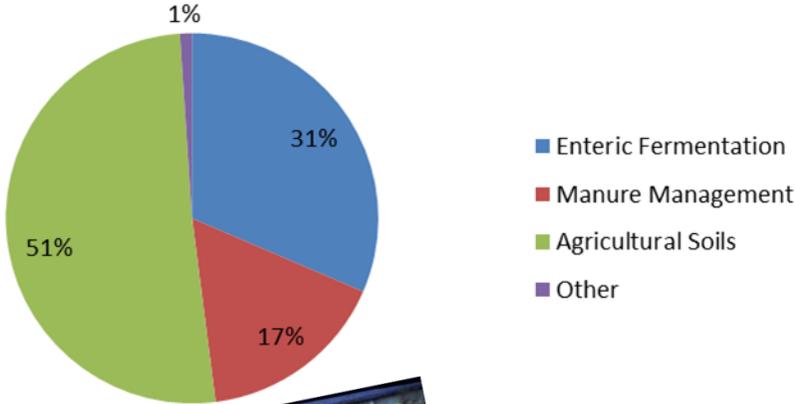


- EU 28 average 10.3%

Country	Agriculture share of total GHG emissions
Belgium	7.9%
France	18.2%
Italy	7.5%
Luxembourg	5.7%
Portugal	10.5%
Spain	11.1%

Source: EEA (2014)

Breakdown by activity



Enteric Fermentation: (CH₄)

- Direct livestock

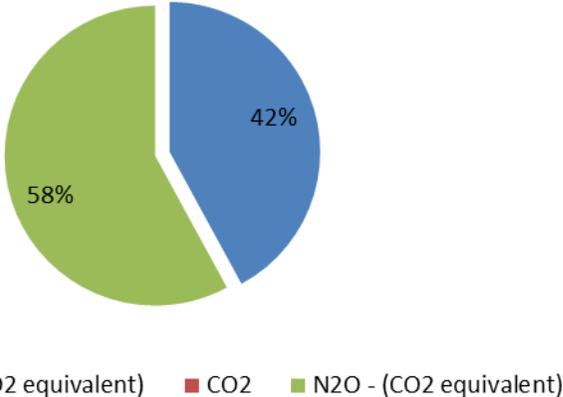
Manure Management: (N₂O & CH₄)

- Storage and application of manures and slurries

Soils (N₂O & CH₄)

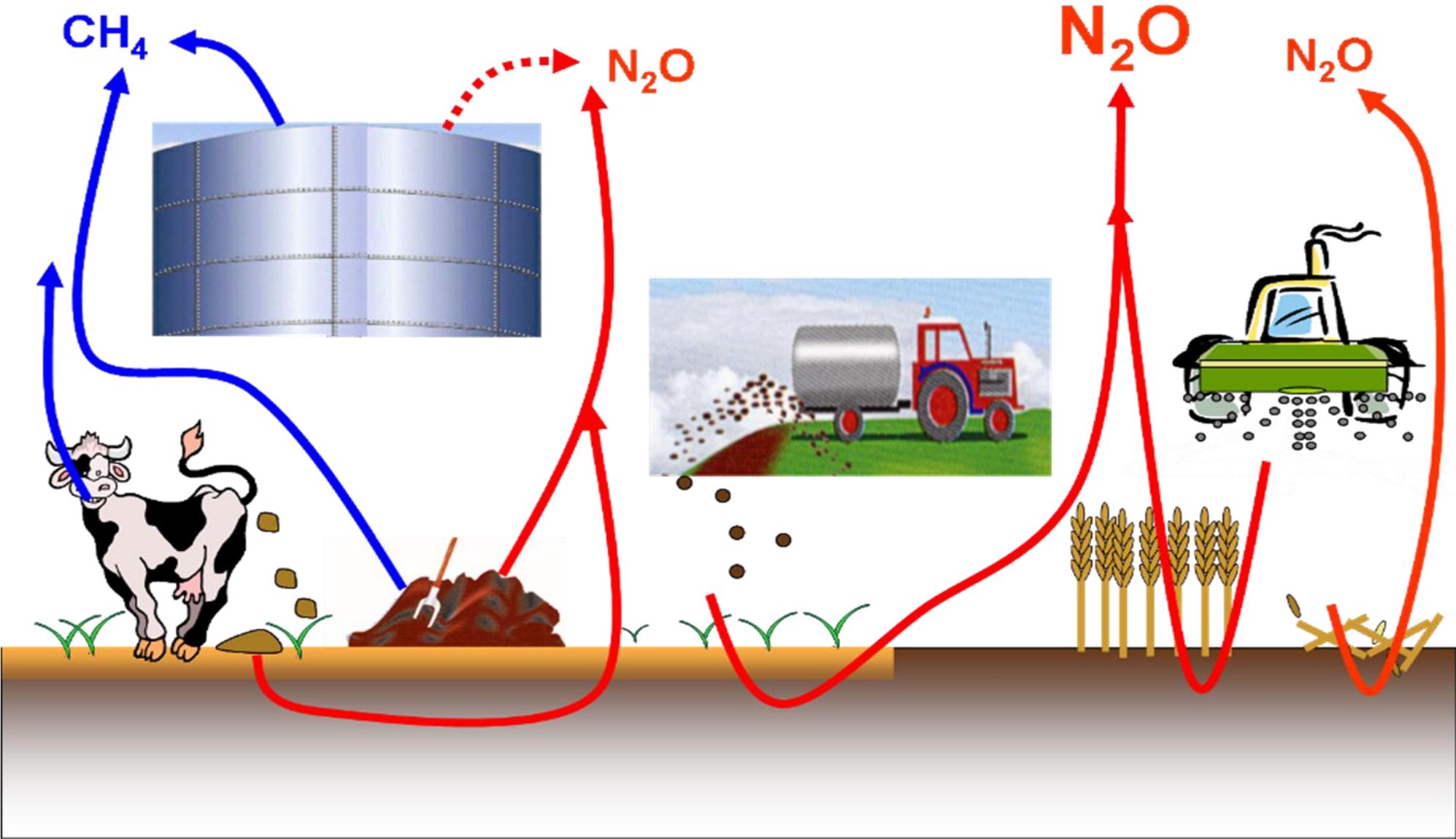
- Cultivation
- Inorganic fertiliser applications

Agriculture: Composition of GHG (%)

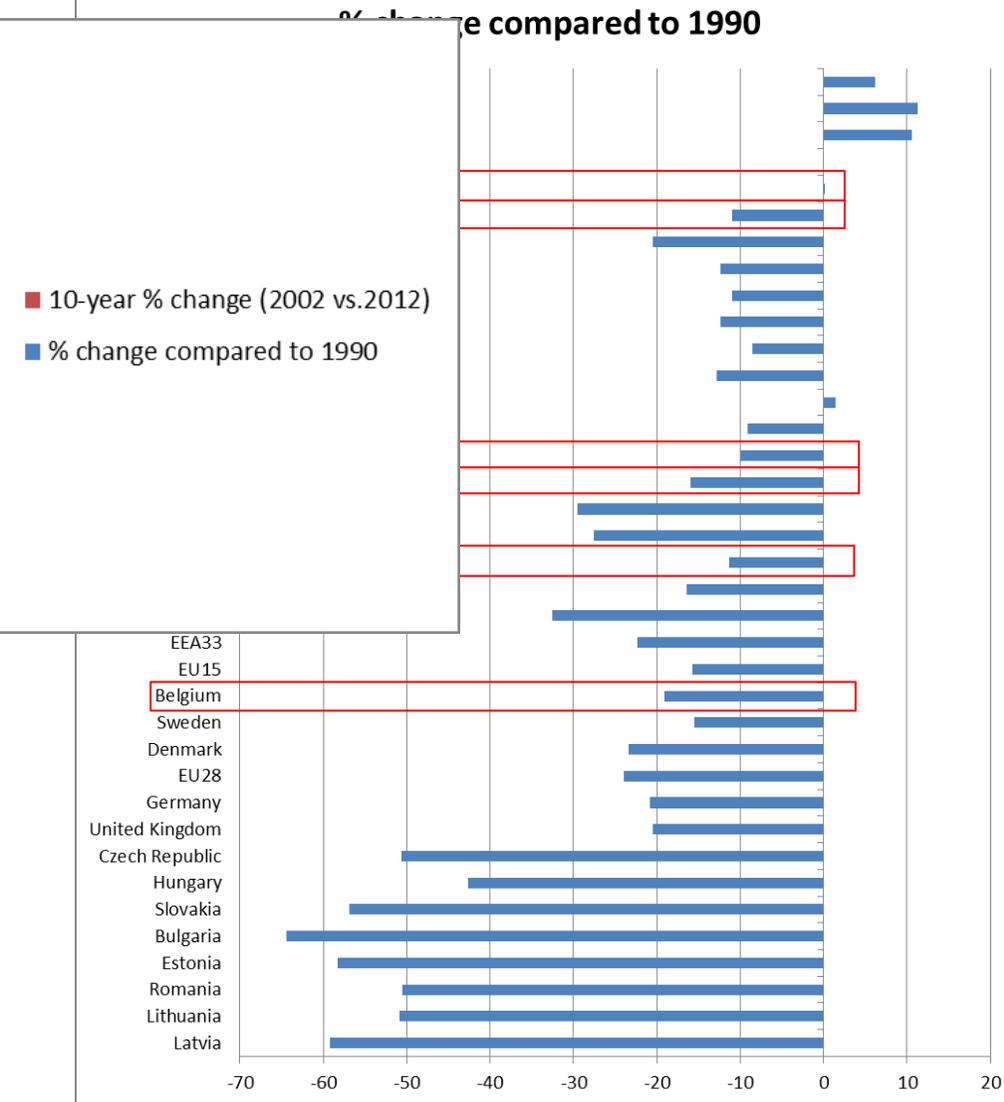
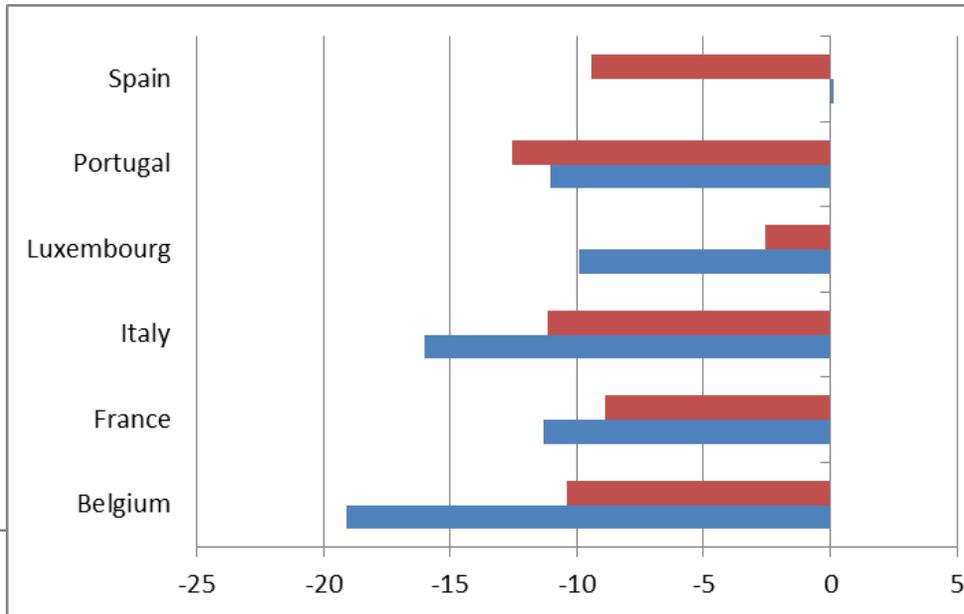


Source: EEA GHG emissions data

Sources of emissions:



EU Agriculture Emission Overview:



- 16% reduction (EU15)
- 10 year ave reduction: 9.1% reduction

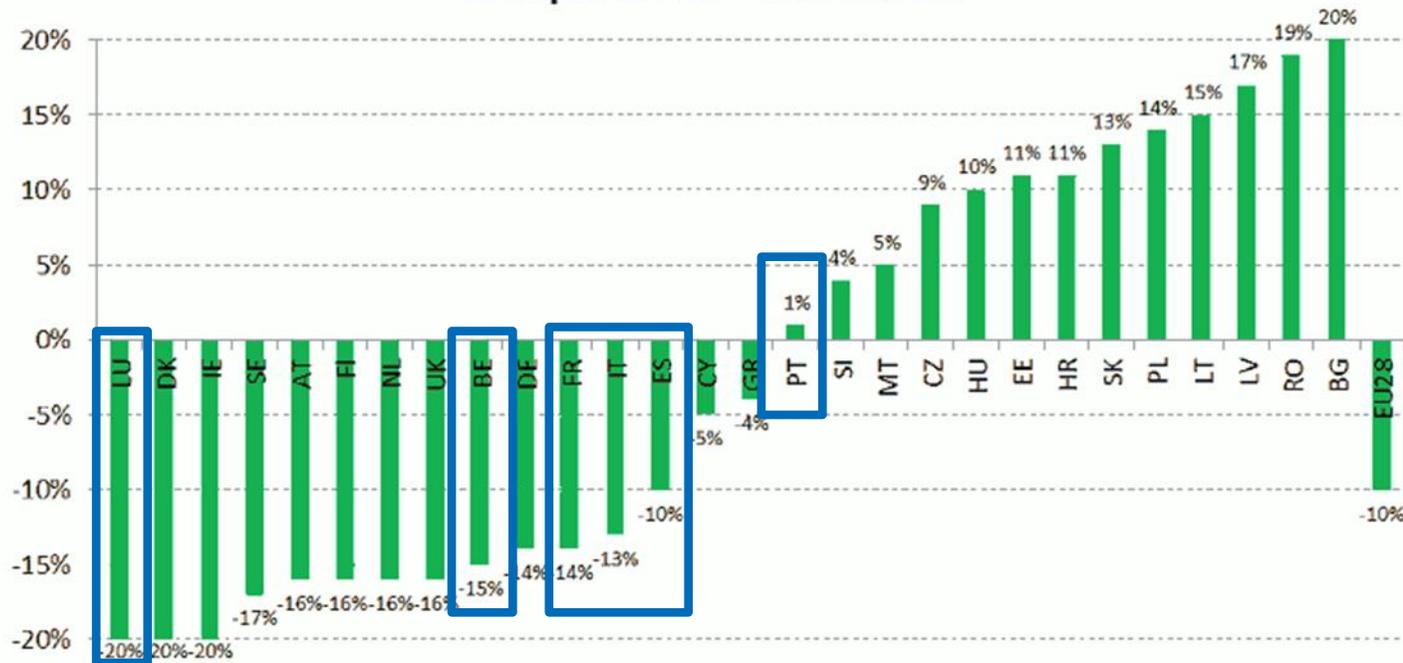
Contributing factors

- Production efficiency measures?
- Change in direct payments structure?
- Livestock numbers?

Source: EEA GHG emissions data

The Challenge:

Member State greenhouse gas emission limits in 2020 compared to 2005 levels



- Agriculture has a role to play in meeting targets
- BUT; reduce emissions, not necessarily production
 - Economic, social and ethical reasons for optimising production

Total GHG vs GHG intensity

GHG emissions = total CO₂e

GHG intensity = GHG produced per:

- tonne of crop
- litre of milk
- kg of meat



By decreasing GHG intensity farmers can make a positive contribution

- Improving efficiency of N use
- Improving efficiency of feed conversion
- Storing manures to reduce emissions (displace inorganic N)
- Protecting and enhancing carbon stores in soils and trees

The accounting challenge:

- Top down (tier 1&2) level inventory reporting does not account for efficiency measures without reviewing emissions factors.
- Bottom up (tier 3) can account for alternative technology and variations in production systems

Examples of existing measures

CAP

- Pillar 1 (Cross Compliance and Greening (2015))
- Pillar 2 (RDP funded activities)

National Priorities – Consider accounting approaches

Spain

- Manure management
- No tillage cultivation
- Legumes on grasslands
- Training for efficient tractor driving
- Training to improve fertilizing efficiency
- Seeded legume-cover on irrigated woody crops

France

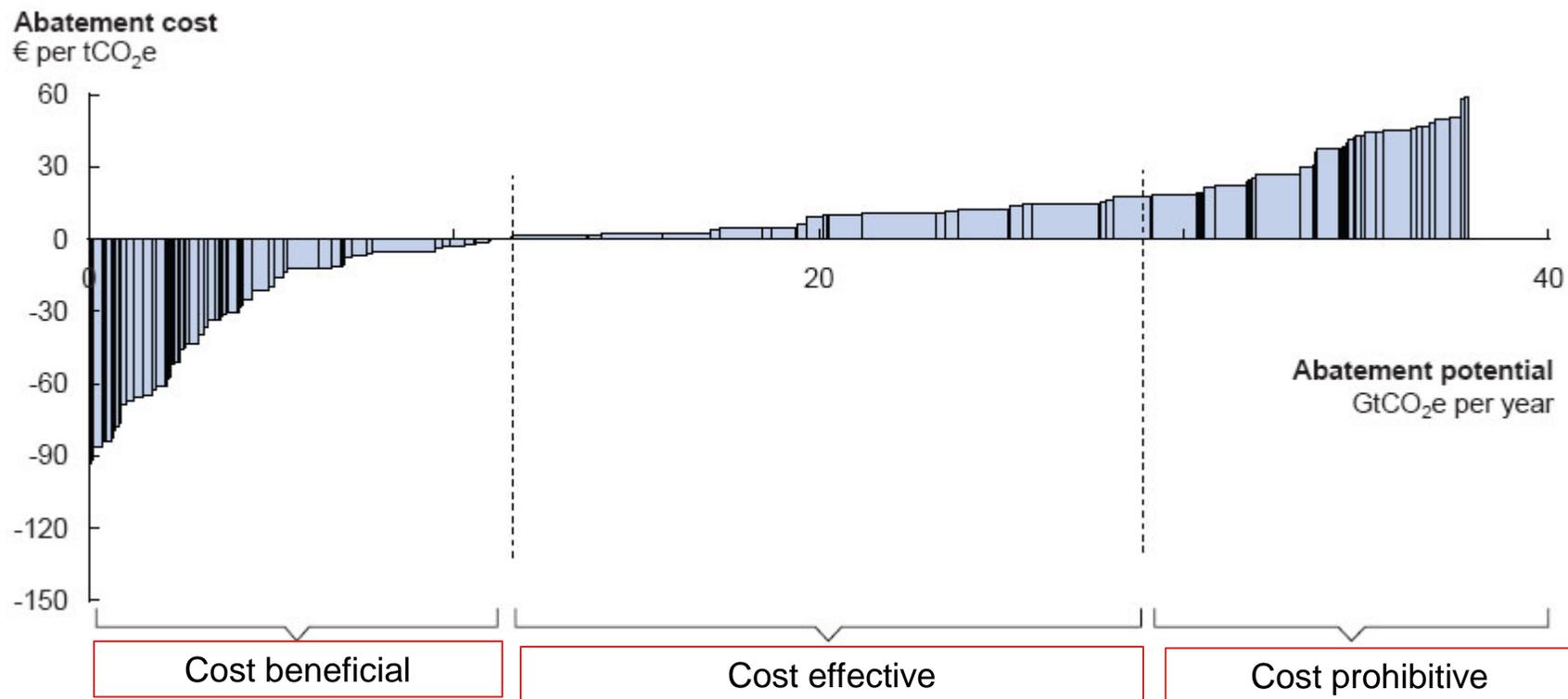
- Reduce the application of mineral nitrogen fertilisers
- Store carbon in soil and biomass
- Modify the animal diet
- Recycle manure to produce energy and reduce fossil fuel

Belgium

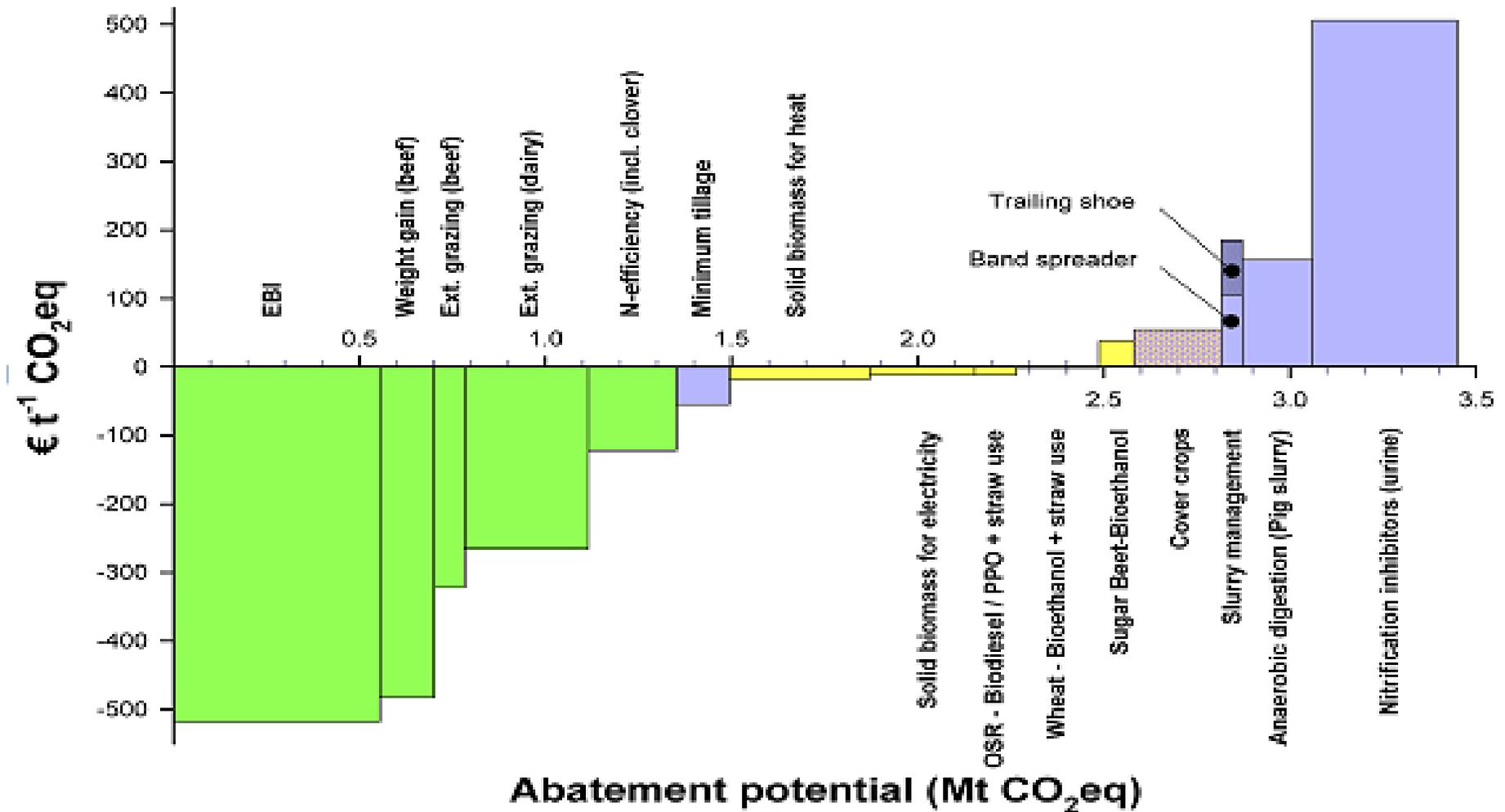
- Support for anaerobic digestion
- Manure management
- Providing advice on good practice

Reviewing appropriate measures:

Marginal Abatement Cost Curve



Reviewing appropriate measures: MACC - Ireland



Using Marginal Abatement Cost Curve

- A good approach for a high level effectiveness assessment of measures
- It does not factor in wider benefits and risks (externalities) beyond financial and GHG impacts:
 - Environmental
 - Adaptation, pollution, biodiversity
 - Animal welfare
 - Land Use
 - Practical implementation factors
 - Technology barriers
 - Legislative constraints
 - Trade
- Undertake 'externality assessment'

Mechanisms for implementation

- Existing policy framework: Common Agricultural Policy
 - Pillar 1: Cross Compliance and Greening Measures
 - Pillar 2: Rural Development Funding
- Advice and Incentives
 - Payments to adopt practices and technologies
 - Advisory activity to promote best practice (Farm Advisory System)
- Farmer and NGO led initiatives
 - UK: Greenhouse Gas Action plan



Implementation Challenges

- Communication
 - Communicating messages to large numbers of farmers
- Cultural change
 - Changing the way things have been done for generations
- Finance
 - Accessing funding
- Measuring activity and benefit
 - GHG accounting challenges

Rationale and justification: 1. 2. 3.	Impacts: 1. 2. 3.
Challenges/barriers and mitigating activities: 1. 2. 3.	Next steps: 1. 2. 3.

Financing – MFF, Direct aids and RDP

MFF approved 8 February 2013, Heading 2 and the CAP (EU 28)

	2013 level (2011 price)	2014	2015	2016	2017	2018	2019	2020	Total 2014-2020 (without assigned revenues)
Total Heading 2	59 633	55 883	55 060	54 261	53 448	52 466	51 503	50 558	373 179
Direct aids and market-related expenditure	43 180	41 585	40 989	40 421	39 837	39 079	38 335	37 605	277 851
of which direct payments		39 681	39 112	38 570	38 013	37 289	36 579	35 883	265 127
of which 30% for greening		11 904	11 734	11 571	11 404	11 187	10 974	10 765	79 538
of which market measures *	3 182	1 904	1 877	1 851	1 824	1 790	1 756	1 722	12 724
Rural development	13 890	12 865	12 613	12 366	12 124	11 887	11 654	11 426	84 936

**Mainstreaming = 30%
for Environmental and
Climate measures**

Key points from 1st round of Rural Development Programme review

- Advisory services – essential, consider mandatory combination with [investment] measures
 - Should incorporate a strong climate action element
- Carbon audit/assessment as a benchmark process for a farm is a key advisory tool
- Encourage uptake of direct mitigation measures
 - e.g. biogas from manure, improved manure/slurry management, reduced fertilizer use
- Combinations of measures: integrated approach, synergies with other sectors on land

Questions and Discussion