Carbon farming and the Voluntary Carbon Market

Presentation to ‘Les journées annuelles 2024 de FairCarboN’

Sète, France

25-27 November 2024

Alan Matthews

Professor Emeritus of European Agricultural Policy

Trinity College Dublin, Ireland

alan.matthews@tcd.ie

Outline

Introduction to carbon farming

What is it, and why talk about it?

Critical risks and constraints in carbon farming

Review of criticisms and issues

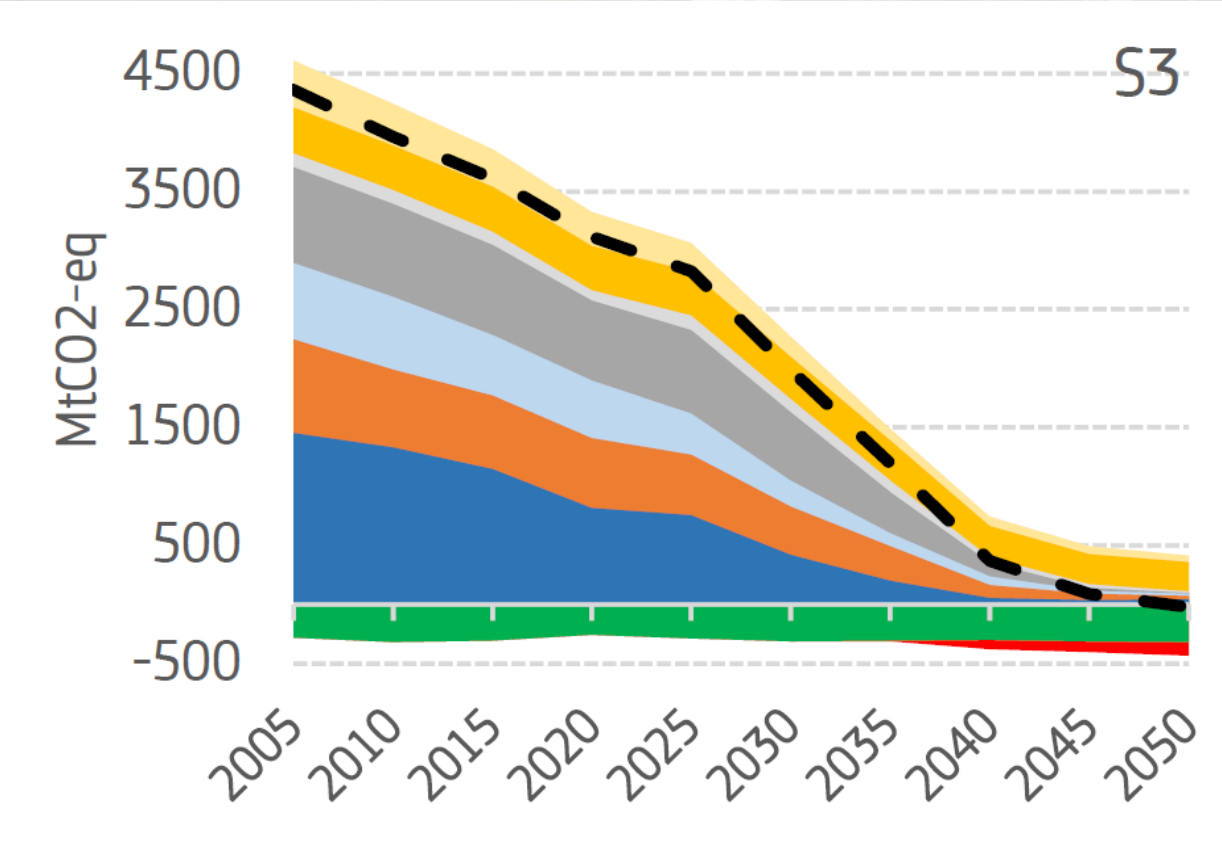
Certification as a way to ensure climate integrity

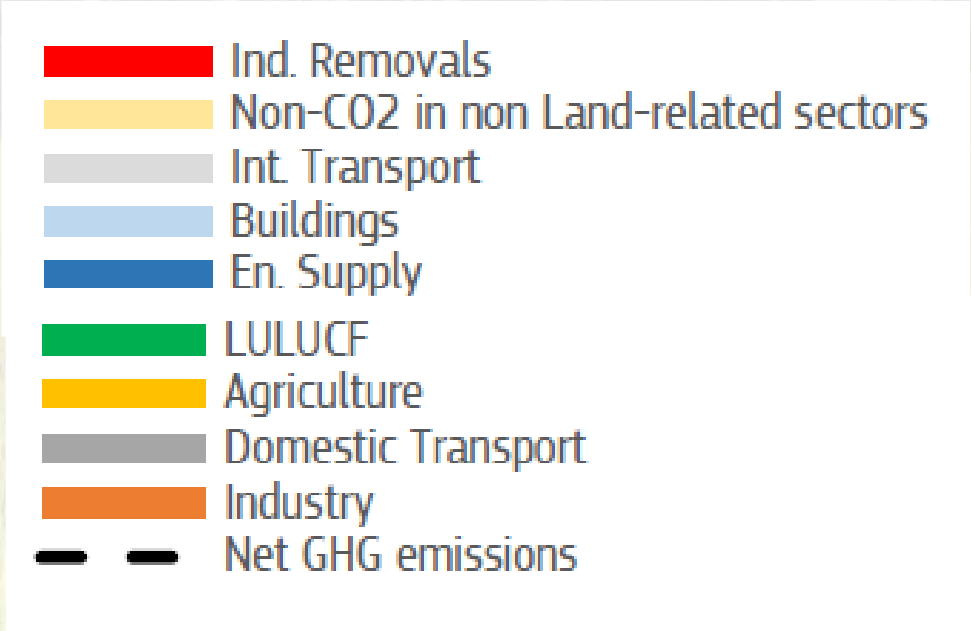
Carbon Removals and Carbon Farming Regulation

Is there a business case for carbon farming?

Why I am uncertain

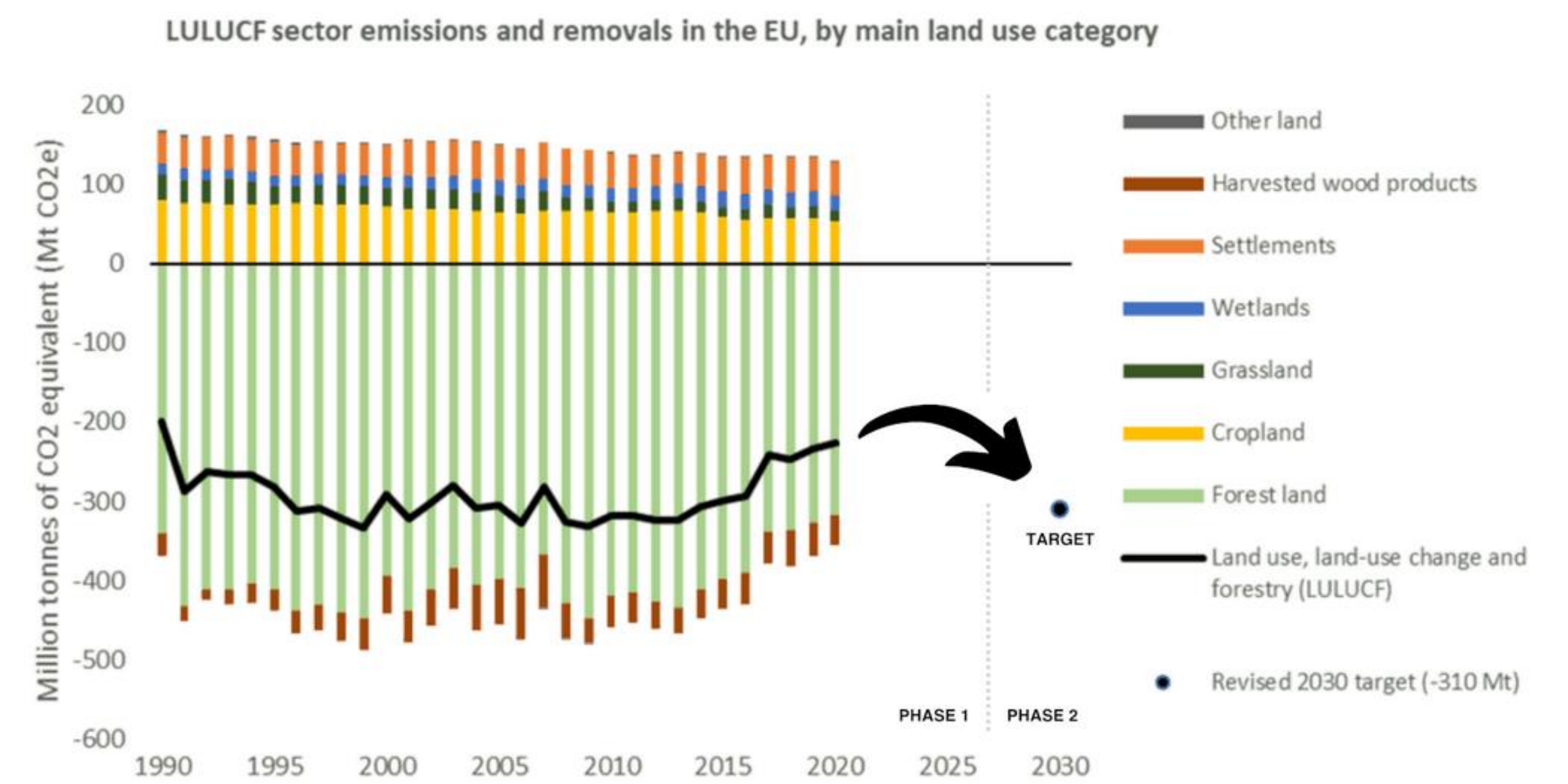
Pathway to 2050 EU climate neutrality target





Net negative emissions after 2050

Source: Commission, Impact Assessment Report accompanying Communication on EU 2040 climate target SWD(2024) 63, Annex 8, Figure 5



Source: European Commission, derived from the European Environment Agency, 2022

Carbon farming

*A **green business model** rewarding land managers for improved land management practices, resulting in carbon sequestration in ecosystems and reducing the release of carbon to the atmosphere.*

Benefits of carbon farming:

- Increased carbon removals
- Additional income for land managers
- More biodiversity and nature
- Increased climate resilience of farm and forest land

European Commission

Carbon farming practices

- *'Carbon farming' means any practice or process,* ***carried out over an activity period of at least five years****, related to terrestrial or coastal management and* ***resulting in capture and temporary storage of atmospheric and biogenic carbon into biogenic carbon pools*** *or the* ***reduction of soil emissions*** *(CRCF Regulation)*
  - Afforestation, reforestation and sustainable forest management
  - Increasing carbon in mineral croplands
  - Increasing carbon stocks in pasture systems
  - Reducing emissions from organic soils
  - Increasing carbon in above-ground biomass
  - Reducing soil emissions from nitrous oxide
  - Increasing carbon in aquatic farming systems

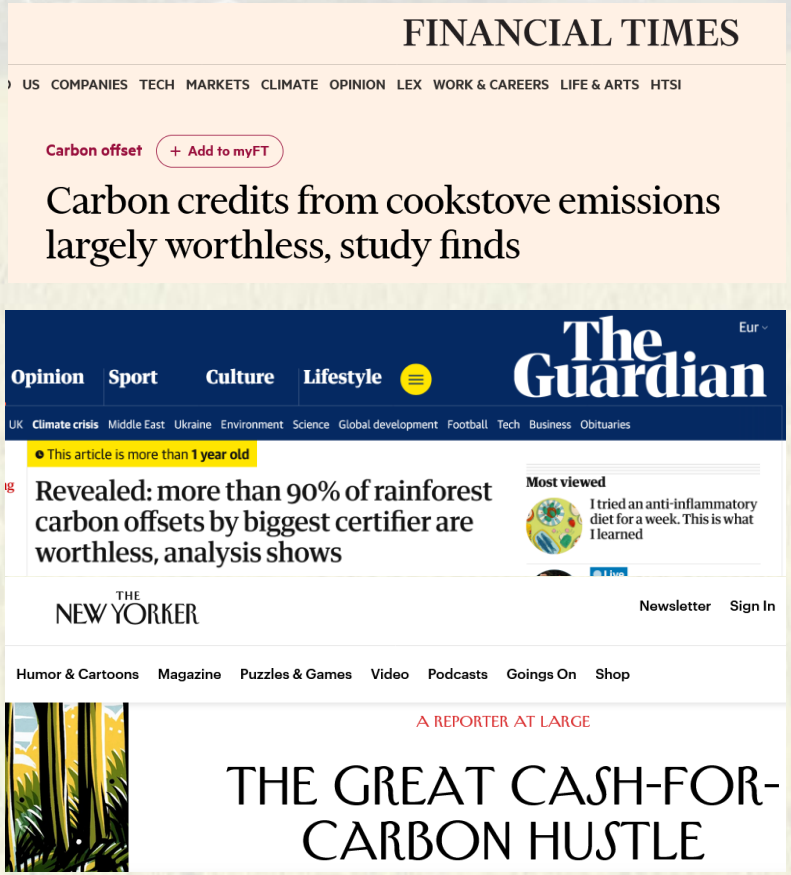
  - Reducing emissions from livestock farming
  - Reducing methane emissions from rice cultivation

Assuring environmental integrity – critical risks and constraints in carbon farming

Temporary not permanent	Avoiding leakage
Limited due to satiation etc.	Reversibility and uncertainty
Monitoring/quantification	Incentive to land grabbing
Reporting and verification	Ensuring accounting integrity
Ensuring additionality	Risk of pollution swapping
Avoiding deadweight	Integrating/'nesting' with national inventories

Certification to overcome credibility gap for VCM credits

- Media scrutiny revealed many projects oversold credits generated
- Supported by recent evidence review by the Science-Based Targets Initiative (Borigjigin-Wang et al., 2024)
  - “various types of carbon credits are ineffective in delivering their intended mitigation outcomes” based on higher quality studies reviewed
- Perverse incentives - project developers benefit from selling more credits for doing less, while credit buyers seek inexpensive credits…
- .. has encouraged several integrity initiatives in voluntary market
- **Hence the EU’s Carbon Removals and Carbon Farming Regulation**



Carbon Removals and Carbon Farming Regulation

- **Objectives**
  - To define quality criteria for carbon removal activities to ensure only high-quality removals are certified. Certification methodologies to be approved by the Commission must comply with these requirements.
  - To define rules for the verification and certification of carbon removals, including rules for the functioning and recognition by the Commission of certification schemes.
- Underlying purpose is to bring greater credibility, transparency and environmental integrity to the carbon market to avoid greenwashing and to attract more private finance

QU.A.L.ITY criteria to be met for certification

QUantification

Carbon removal activities are measured accurately and deliver unambiguous benefits for the climate

Additionality

Carbon removal activities go beyond standard practices and what is legally required

Long-term storage

Certificates clearly account for the duration of carbon storage and distinguish permanent storage from temporary storage

Sustainabil-ITY

Carbon removal activities must support sustainability objectives such as climate change mitigation and adaptation, biodiversity, circular economy, water and marine resources

Source: Image from Arbonics

Carbon Removals and Carbon Farming (CRCF) Regulation

- Certification methodologies
  - Carbon credits are generated according to protocols that specify requirements for eligibility and MRV. Now being developed with Expert Group on Carbon Removals
- Certification process
  - Operators submit proposals to a certification scheme
  - Certification schemes are audited by nationally approved certification bodies
- Certification coverage
  - Goes beyond IPCC definition of carbon removals to include emissions from soils with possibility to extend coverage to livestock emissions reviewed in 2026
- A voluntary framework
- Now a clear distinction between activities leading to long-term and short-term storage of carbon, also reflected in changed title ‘certification framework for ***permanent*** carbon removals***, carbon farming and carbon storage in products***’

The use case - how will credits be used?

- First concern of critics has been that (temporary) carbon removal credits might be used to offset long-term emissions of CO_2 either in a compliance market (e.g. ETS) or when companies make climate-neutral claims.
- Second concern is that allowing credits within compliance regimes or letting companies use credits would diminish mitigation ambition
- Environmental NGOs sought a prohibition on use of credits in either compliance or voluntary markets
- Commission position that use of certificates should be determined in the relevant legislation (e.g. ETS, LULUCF, Green Claims, etc) and not in the Certification Framework prevailed
- Certificates must contribute to Union climate objectives and cannot be traded with third countries

Potential market demand for carbon farming (CF) credits

- Companies might purchase credits for compliance purposes, as carbon offsets, or for insetting
  - Emissions Trading Scheme legislation requires Commission to report in 2026 on how ***permanent*** removals might be accounted for in the ETS
  - Greater focus on Scope 3 emissions due to Corporate Sustainability Reporting Directive, requires separate reporting of removals due to insetting and purchase of carbon offsets. Growing number of corporate net-zero commitments
  - Use of CF offset credits to make climate-related claims may be greatly limited by forthcoming Green Claims Directive whereas insetting is prioritised
  - Greater interest among food companies for credits for insetting within their supply chains, also because of co-benefits for supply chain resilience
  - Regulatory requirements can also stimulate CF demand
    - e.g. mandatory offsetting for French domestic airlines and coal-fired plants, CORSIA credits

Potential farmer interest in carbon farming credits

- US survey showed awareness of carbon markets among 93% of livestock and cropland managers, but only 3% participation rate.
- Barriers include (USDA, 2023):
  - Limited return on investment
  - High transactions costs including MRV costs
  - Conservative accounting of benefits generated
  - Stringent permanence requirements
  - Confusion over options (41 active protocols operating in US!)
  - Low demand
  - *(In EU, half of agricultural land is rented, which complicates long-term contracts)*
- Farmers' willingness to engage in carbon farming ultimately depends on economic incentives relative to the costs and risks involved.
  - As a thought experiment, if CF practices lead to soil carbon increase of 1 CO2e t/ha/yr and associated costs are €60/ha, then carbon credit price (exc. transaction costs) must be at least €60/t.
  - Indigo and ReSoil return 75% of purchase price back to farmer

Evidence from existing voluntary carbon markets

- Most VCM demand to date has been forestry rather than agricultural credits
  - US 2013-2022: Forestry accounts for 58% of credits issued and agriculture and land use credits 3%, mainly livestock digester projects (USDA 2023).
  - By end 2023, French Label Bas Carbone 79% of the certified projects related to forestry sector but agricultural projects contributed 42% of credits and are rapidly catching up.
  - Protocols for soil carbon only recently developed so limited credits issued to date
- Prices are very variable but can be high relative to compliance markets
  - Ecosystem Marketplace reports global prices for agricultural credits $11 in 2022 falling to $6.5/t CO2e in 2023 (State of Voluntary Carbon Market 2024)
  - In 2022, the weighted average price of offset credits from livestock and forestry projects ranged from $16.57 to $19.91/t CO2e in California (USDA 2023)
  - Indigo (claims to be largest registry-approved ag soil carbon program) claims payment up to $75/ha for cropland soil carbon in US after costs
  - France Label Bas Carbonne agricultural credits paid €40-50/t in 2021-22 compared to forestry credits £30-€35 (note tax incentive for regulated entitles creates demand)
  - ReSoil (French project developer) guarantees minimum €30/t credit and projects up to 3 credits per hectare

Public support for carbon farming markets

- MS technical assistance to farmers through advisory service
- Improving models and tools to estimate GHG sources and sinks
- Creation of public certification protocols (as in France and Portugal)
- MS public funds can pay for costs of verification (e.g. Label Bas Carbone)
- MS public sector support for voluntary private sector initiatives
  - Blended finance programmes where public funds finance upfront costs while private sector pays for the certified carbon credits
- MS public sector purchasing of carbon credits
  - Public sector already supports carbon farming actions through the CAP
  - What are incentives to change to results-based certified carbon credits?

For discussion – is there a business case for carbon farming?

- EU needs to reverse the erosion of the land sink by increasing sequestration and reducing agricultural emissions
  - What role will a voluntary market play?
- Will there be continuing and growing demand for carbon farming credits, essentially 5-year temporary carbon removals?
- Will the credit price be sufficient to incentivise sufficient farmers to enrol in carbon farming schemes?
- Can public money (including Common Agricultural Policy funding) be used in a smart way to leverage an expanded market?
- Would inclusion of agriculture in an emissions trading scheme radically alter the terms of the debate?