




Climate Change Mitigation in the Agri-Industrial Chain

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Agri-industrial chain emits Greenhouse Gases (GHG)

- CO₂ (energy use, field operations, production of fertilizers and other inputs, transport in distribution)
- CH₄ (methane from ruminant animals, and manures and other waste)
- NO₂ (nitrous oxide from soil organic matter)

In UK < 1% of CO₂ but 7% of total GHG

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Why is this important?

- Climate change is a major issue for agriculture
- European consumers and customers demand action
- Agricultural industry must show responsibility
- Emphasis on mitigation, anticipate needs
- Promoting positive opportunities and change from within
- Recommendations - for governments and our industry

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Five Priority Areas

- Directed research on national greenhouse gas inventory/s
- Delivery of best available practices for integrated nitrogen management to improve current N efficiency
- Raising awareness of energy and carbon accounting; promoting energy efficiency and carbon management through financial incentives
- Removing barriers to the uptake of anaerobic digestion
- Realising the wider potential for the land-based industries to supply renewable energy

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Convergence: climate change, energy security, food security

- Climate change – non-stop media coverage? Not just 2006 or 2007; we face decades of climate change!
- Oil prices and energy security: \$103/bbl – higher than 1981
- Rising food prices (at last!) due to worldwide structural change, globalisation and new markets (biofuels)
- Climate change, energy and food security are all driving policy at international, national and regional level




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Policy measures that will impact agriculture

- UK Climate Change Bill – EU targets – Bali successor to Kyoto Protocol (carbon pricing, maybe other GHGs?)
- EU and UK targets for renewable energy – for electricity, transport fuels and heating
- Agriculture will be impacted by climate change, and must also anticipate and respond to regulation
- We believe there are more opportunities than threats
- Agriculture offers part of the solution to TWO major public problems in addition to food security

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Support required for various bioenergy technology

- Biofuels need long-term consistent rules – from first-generation to advanced biofuels
- Small wood-fired power generation, may be embedded within rural market towns – needs clear regulation on emissions and avoidance of “waste incineration” label
- Anaerobic digestion (biogas) – good manure management should be incentivised through amended WFD – distinction made between farm-based and waste-based systems
- Perennial energy crops – poorly developed despite potential

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Perennial energy crops – a new sub-sector

- SRC willow (harvested every three years) and miscanthus (harvested annually)




Short rotation coppice willow



Miscanthus


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Perennial energy crops – a new sub-sector (cont...)

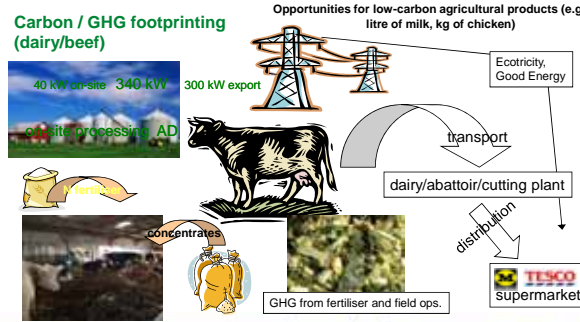
- Solid biomass fuel for power stations, local heat, future transport fuels – new NFU discussion group formed
- Explicit ES needs to be rewarded (biodiversity, permeability, low inputs, low run-off, flood control)
- However – poor market development, loss of flexibility in marketing, cannot be diverted back to food/feed uses like grain-based feedstocks

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Carbon / GHG footprinting (dairy/beef)

Opportunities for low-carbon agricultural products (e.g. litre of milk, kg of chicken)



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Conclusions

- Farmers can make a significant contribution to energy supply and climate change mitigation, both in Britain and the EU
- Agriculture represents a substantial natural energy resource
- Challenge is to increase agricultural production and reduce climate change impacts in transition to a low-carbon economy

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