Bioethanol Production Requirements

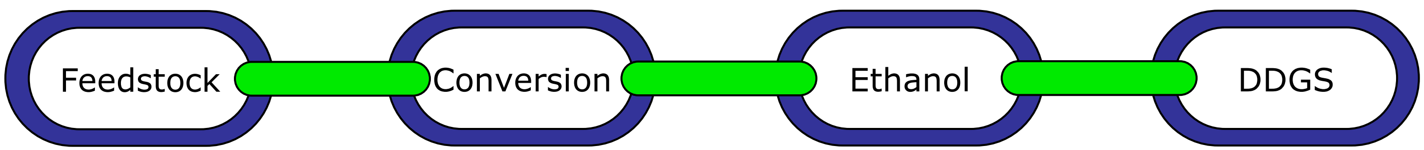
WGIN Stakeholders Meeting

17th November 2010

vivergofuels

The Business

vivergo fuels

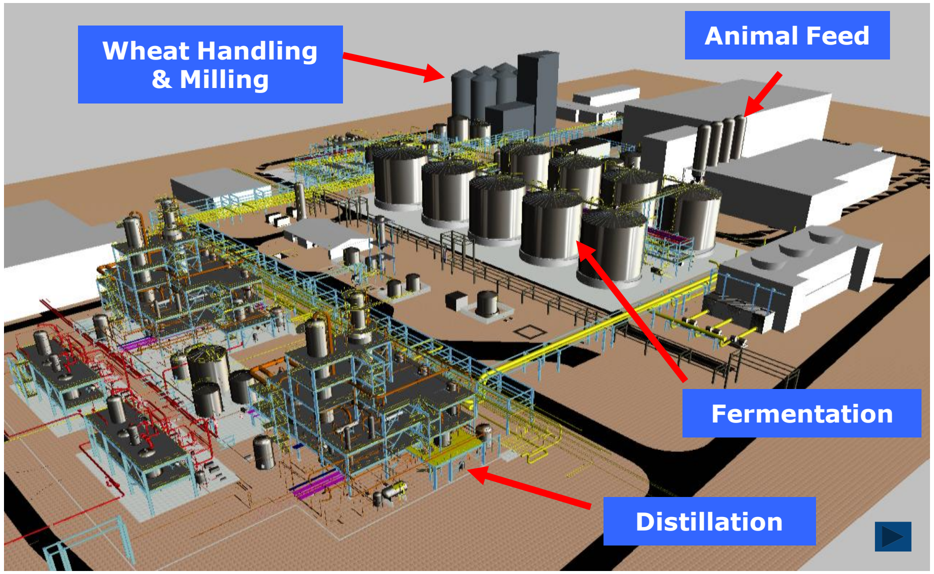


ABF (Frontier) **ABF/BP/Du Pont** **BP** **ABF** (KWTrident)

Underpinned by a unique partnership to leverage value chain strengths

BRITISH SUGAR DUPONT

Plant and Location

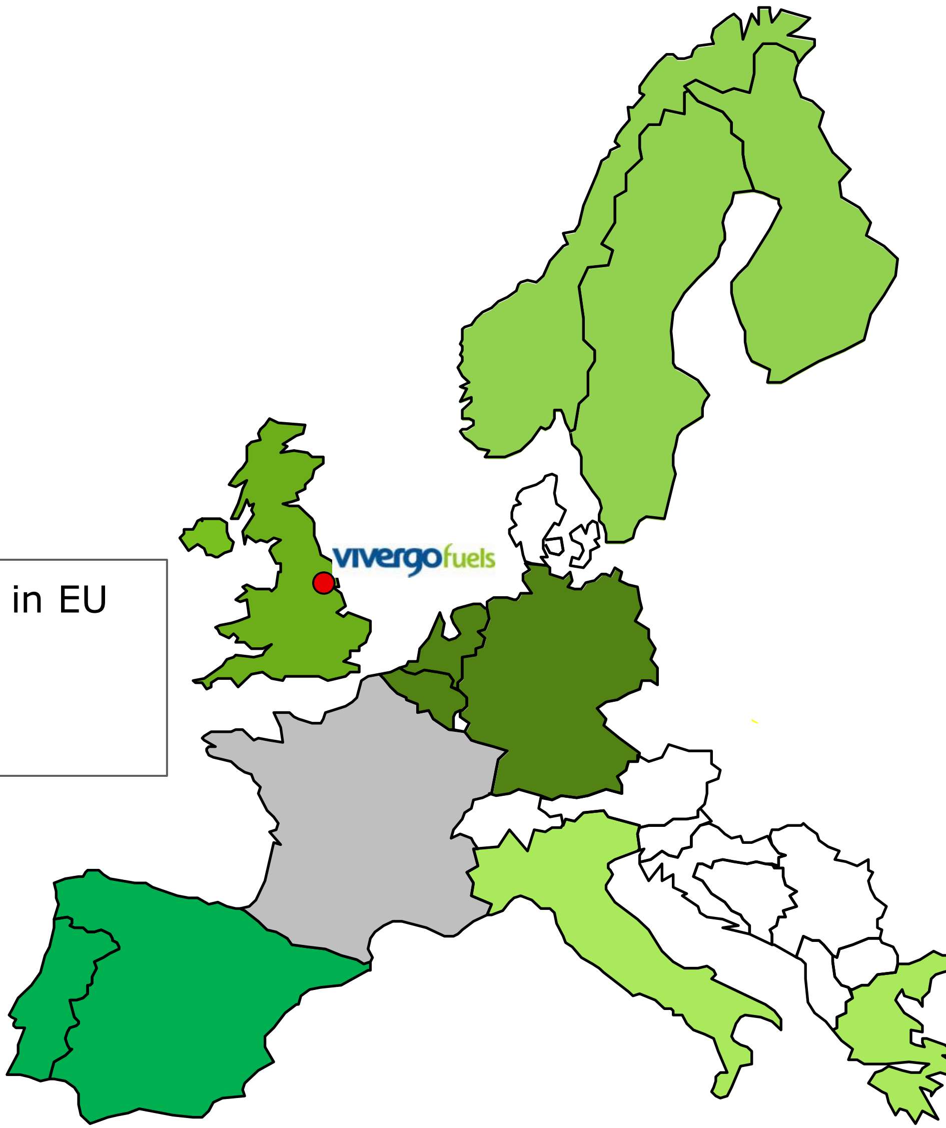


No.1 Ethanol producer in UK, 2nd Largest plant in EU
5th Largest Biofuel company in EU
No.1 Animal Feed plant in UK
No.1 Tip point for Wheat in UK

Ethanol Market

Key markets: UK, Germany, Iberia, Scandanavia, East Med

EU27: 2009 4.3 bnltrs 2020 (10%ec) 16 bnltrs




Control Room
Wheat Milling & Storage
Liquefaction
Distillation & Evaporation
Fermentation
DDGS Drying / Pelletising
DDGS Storage

Wheat Procurement - Frontier

- **Key points:**
  - Requirement
    - 1.125 million UK sourced wheat
  - Exclusivity
    - Frontier sole supplier
  - Logistics
    - Ability to synchronise and optimise logistics
    - Back loading potential with KW Alternative Feeds
    - Rapid lorry turnaround
  - Feed wheat
    - Group 1,2,3 & 4 accepted
    - No DON requirement

vivergofuels

The Model T Ford – Designed to run on Ethanol ...before petrol was cheap

Back to the Future?

vivergofuels

The New EU biofuels legislation

Renewable Energy Directive

- 10% (by energy) renewable fuel for road use by 2020

Fuel Quality Directive

- 6% reduction in GHG's from transport by 2020

Compliances common to both

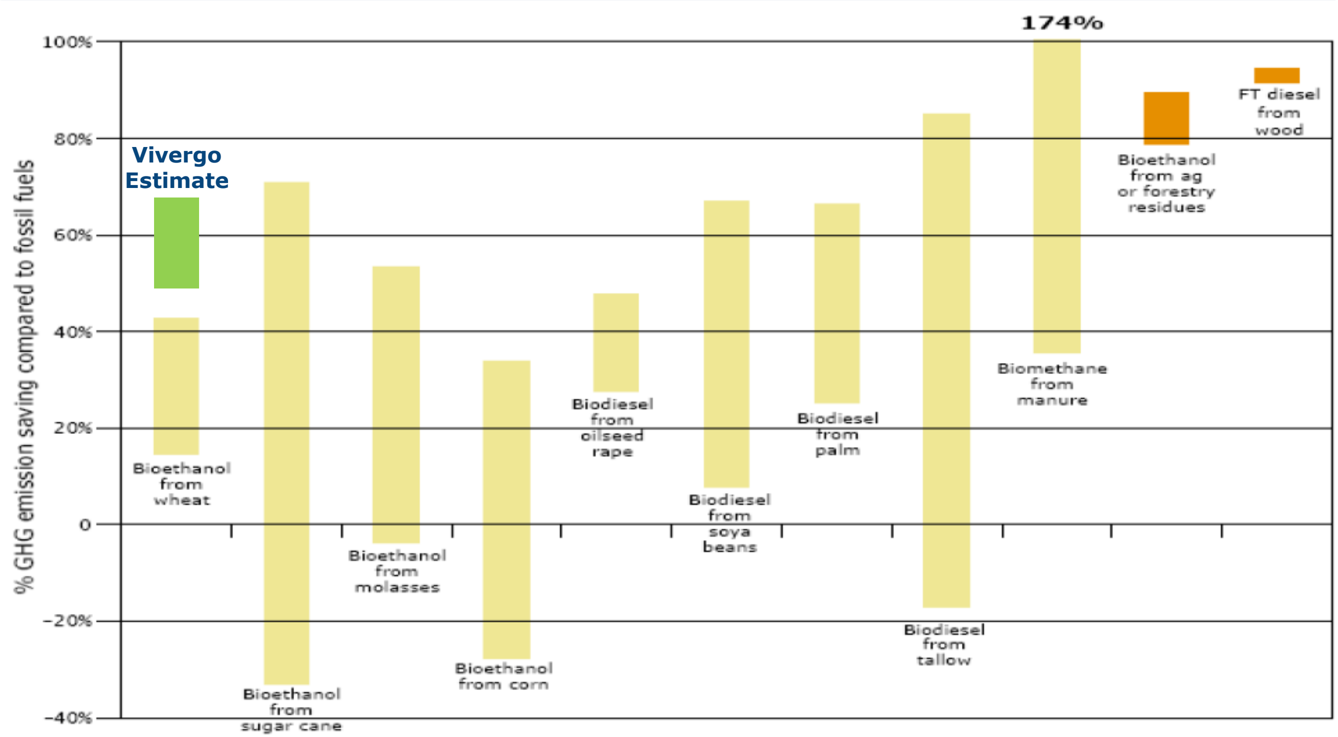
- Min 35% reduction in LCA GHG's, rising to 50% after 2017
- Feedstock from environmentally and socially sustainable sources
- Encouragement/mandates for real carbon data reporting.
- Policy implementation target date -Dec 2010, likely summer 2011

Source – EU DGTren

vivergofuels

Biofuels done well vs. biofuels done poorly

Figure 2.2: Estimated GHG savings of current biofuels



Source: UK Renewable Fuels Agency

Sustainability:

- **The UK is one of the most efficient wheat growing regions in the world.**
- **Wheat is grown on existing cropland - no direct land use change, no loss of biodiversity.**
- **Workforce welfare is protected under UK and EU law.**
- **The UK is short of protein for animal feed.**
- **Animal feed from ethanol production reduces dependence on South American imports.**

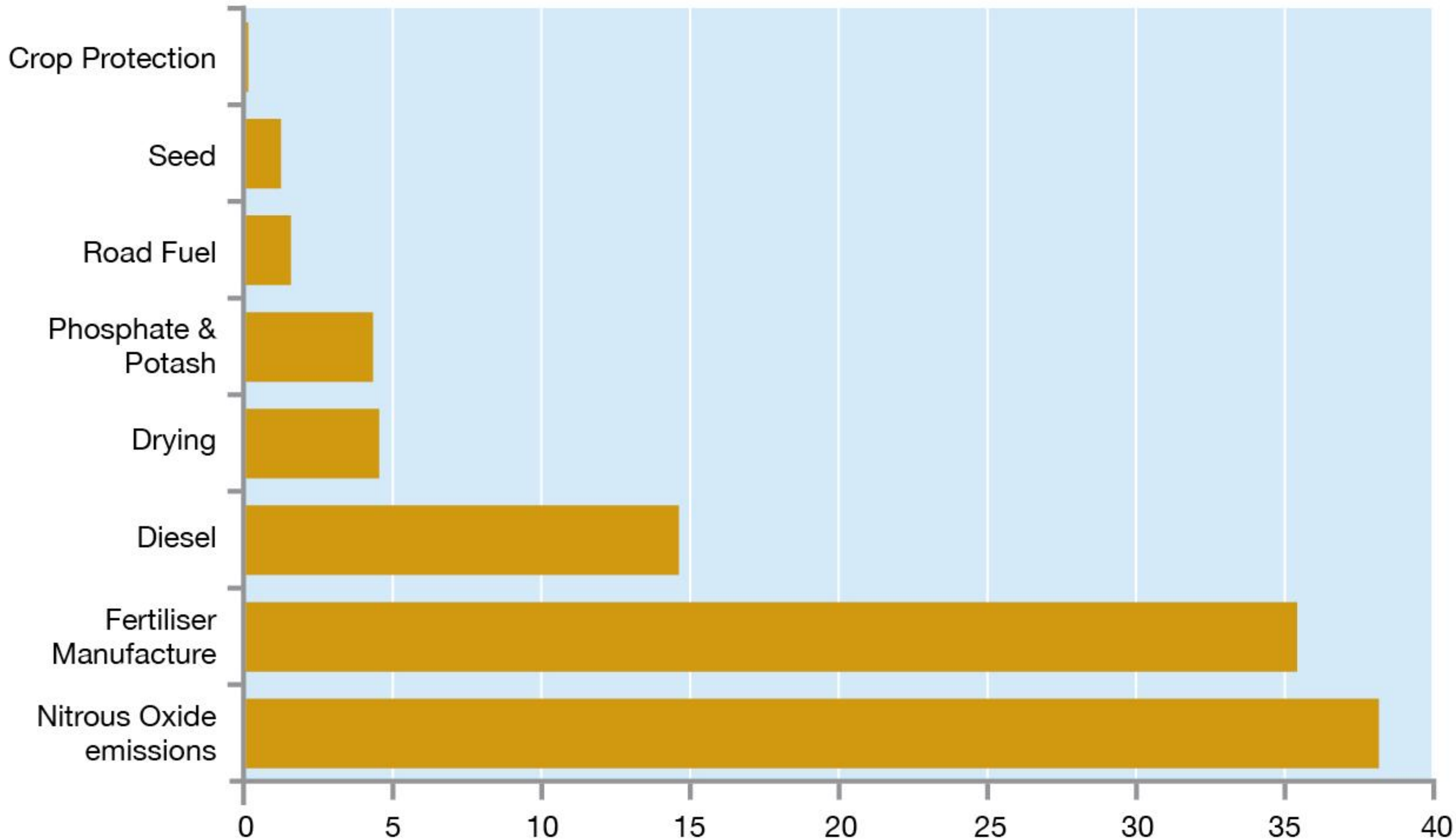
vivergofuels

Fuel chain summary – 1st Gen. bioethanol

Wheat - bioethanol (natural gas as process fuel in CHP plant)	%
1 - Crop Production	**61.0**
2 - Drying and storage	**0.0**
3 - Feedstock transport	**0.8**
4 - Conversion to bioethanol	**34.9**
5 - Fuel transport	**1.3**
6 - Bioethanol depot	**0.3**
7 - Fuel transport	**1.3**
8 - Bioethanol filling station	**1.0**
Total	**100**

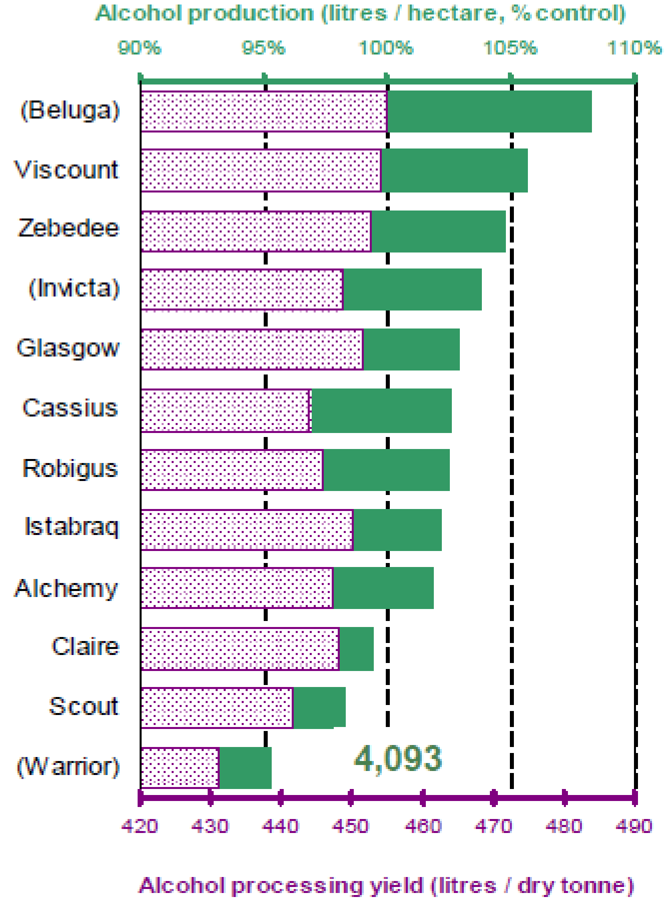
vivergofuels

Relative impact of inputs

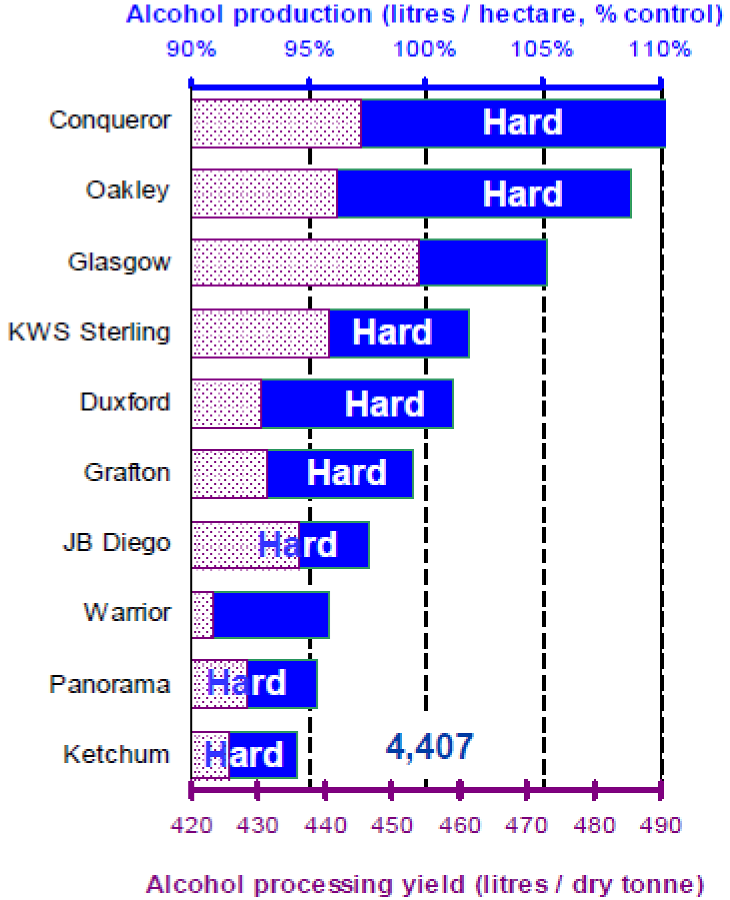


Biofuel Requirements

SWRI data, RL trials, 2006-2009, all soft



ADAS data 2009, 6 sites



Summary

- Ongoing development of global initiatives such as the EU Renewable Energy Directive and the US Renewable Fuels Standard will lead to confusion
- Potential global growth in trade opportunities as biofuel and biomass industries expand/mature
- Increasing emphasis on GHG and sustainability reporting
- Food versus fuel debate set to continue
- 2nd and 3rd generation still not commercially viable
- Good opportunities for UK arable and livestock farmers and sectors

vivergofuels

Thank you

Site Photos

Site Photos