

Agricultural Change and Environment Observatory Programme

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“Enhancing monitoring of agricultural impacts on the
environment”

RELU conference “Constructing Evidence for Public Policy”
Workshop

19th January 2006

For more details on the programme: www.defra.gov.uk/farm/observatory/index.htm or
contact us at observatory@defra.gsi.gov.uk.

Outline for presentation

- *Background*
- *Aims of Observatory Programme*
- *Overview of work programme and methods applied*
- *Links to RELU programme*
- *Discussion points*

Importance of agriculture to the environment in UK

- *Agriculture accounts for only ~0.8% of total economy in UK*
- *But agriculture occupies over 70% of total land area*
- *Crucial role in enhancing biodiversity and protection of natural resources*
- *Will play important role in helping to meet some of Defra's key strategic priorities*

Relevant Defra PSA Targets and Strategic Priorities

- ***PSA 3 – Care for our natural heritage, make the countryside attractive and enjoyable for all and preserve biological diversity by:***
 - Reversing long term decline in number of farmland birds by 2020
 - Bringing into favourable condition by 2010 95% of all nationally important wildlife sites
- ***Relevant Defra Strategic Priorities:***
 - ***Protecting the countryside and natural resource protection*** – understanding our impact on the natural environment, managing our impact on the land, improving water quality, halting the loss of biodiversity
 - **Sustainable farming** – more customer focused, competitive and sustainable farming

Overview of environmental impacts

Estimated Monetary Adjustments to Agricultural Accounts (£million 2003, central est)

			UK	E&W only
1. Water	Value of water pollution arising from agriculture production	Inland	-£71	
		Coastal		-£3
	Value of agriculture water abstraction		-£36	
2. Air	Value of air pollution arising from agriculture production	Global	-£889	
		Regional	-£67	
3. Soil	Value of (net) soil erosion on farm on future yields		n/e	n/e
4. Landscape	Value of landscape amenity services by current provision of landscapes		+£448	
5. Habitats & Species	Value of habitat and species protection services provided by current land-use	Habitats		+£225 (E)
		Species	+£307	
6. Waste	Value of waste pollution and disamenity arising from agricultural production		-£15	

Source: Framework for Environmental Accounts for Agriculture, EFTEC, July 2004

2003 CAP Reform Changes

- Introduction of Single Payment 2005.....
-Payments decoupled from production
- Farmers much more exposed to market signals
- In theory, decisions on whether to produce should exclude single payment



Wider elements of CAP Reform

- Decoupling and single payment
- Dairy reforms
- Cross Compliance
- Set aside
- Modulation
- New Pillar 2 measures – Environmental Stewardship launched in 2005



Past studies on environmental impacts of CAP Reform

- Key studies by GFA-RACE on potential environmental impacts of CAP Reform (August and December 2003)
- Other studies from JNCC, English Nature
- While environmental impacts expected to be broadly positive, a mixed picture emerges with significant uncertainties
- Recognised need for monitoring to pick up early changes

Potential impacts of 2003 CAP Reform on the environment – previous analysis

Potential positive impacts	Potential negative impacts
<ul style="list-style-type: none">• Increase in fallow land and reductions in inputs;• Reductions in emissions to air, soil erosion, pollution of water course;• Reduction grazing pressure on important habitats	<ul style="list-style-type: none">• Decline in mixed farming – less diversity of landscape and habitat• Reduction in suckler cows – undergrazing impacts on condition of SSSIs;• Specialisation and concentration – localised adverse impacts• Loss of countryside skills

Aims of Observatory Programme

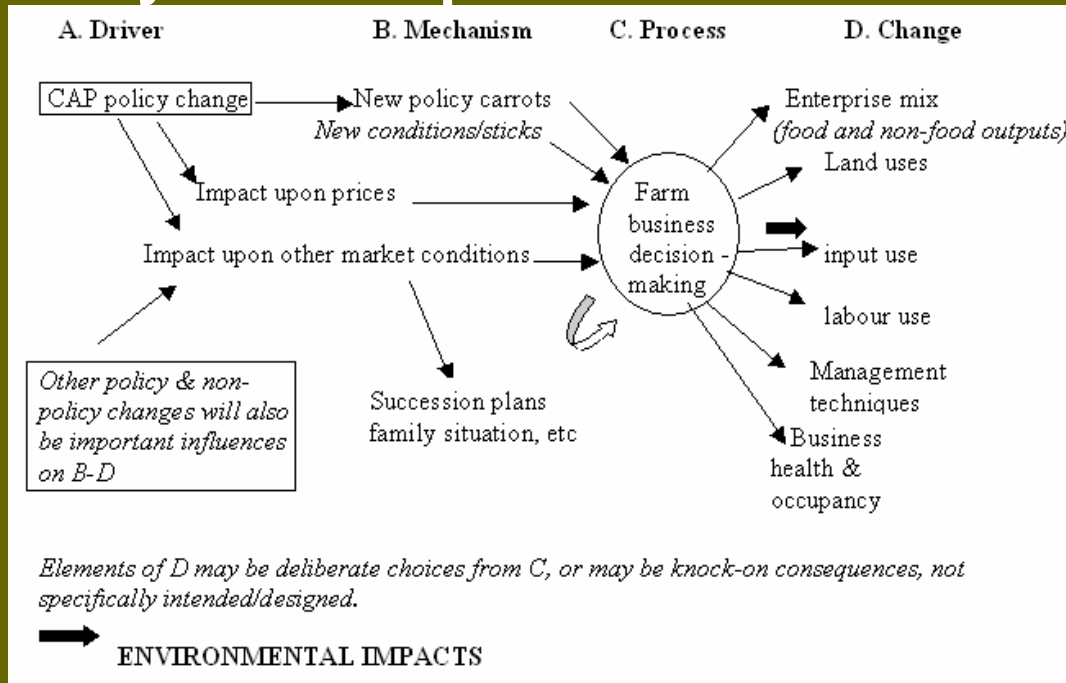
Overall objective:

“To monitor, and where possible anticipate changes in agriculture and at farm level driven by CAP reform, drivers for that change, and consequent implications for the environment”

To be achieved through collation of information and analysis of:

- farmer intentions and changes in farming patterns and practices;
- links between changes observed at farm level and observed environmental changes, both beneficial and detrimental, and
- future environmental changes on basis of above analysis and understanding of causal links

The Observatory – Conceptual Model of what it must do



E. Initial focus – elements that change

Land cover types and spatial relations
 Traditional field boundary damage/retention
 Habitat extent and condition
 Species population and range
 Nutrient leaching to water
 Pesticide contamination of water
 Soil loss/compaction/contamination
 Air pollutants ammonia, methane

Damage to ancient monuments
 Cultivation of earthworks
 State, age, siting and abundance of farm buildings

F. Underlying focus of concern

landscape character and diversity
 landscape, biodiversity, history
 biodiversity, landscape
 biodiversity
 basic resource protection, biodiv.
 basic resource protection, biodiv.
 basic resource protection, biodiv.
 climate change, basic resource
 protection, biodiversity
 history, landscape character
 history, landscape character
 landscape, history

Overview of Work Programme

- Work to be undertaken by the internal Observatory team complemented by an external research programme and Stakeholder Advisory Group.
- Key elements of internal team work: data gathering/ analytical role; developing Defra agricultural statistics to link to environment; making use of wider economics and statistics work in Defra (e.g indicators, agricultural modelling; FBS); production of Annual Report
- External projects designed to cover both need to maintain updated picture of the impacts of CAP Reform and the environmental consequences, as well as medium term aims to improve our understanding of the changing impact of agriculture on environment.

Internal Research Programme 2005-06

- **Environmental impacts of changes in set-aside and fallow in June Survey 2005**

To analyse the changes in set-aside and bare fallow following the introduction of the Single Payment Scheme. See case study.
- **Environmental impacts of changes in English cattle numbers in June Survey 2005**

To investigate the provisional results of the June Survey that indicated a reduction in both the dairy herd and herd replacements, particularly for the suckler herd.
- **Improved local agricultural data**

To develop the methodology for producing agricultural data on a kilometre square grid using a combination of IACS and June Survey/Census data. Project is being carried out in collaboration with CSL.

External Research Programme 2005-06

Environmental Monitoring Baseline Project

- To develop a framework for environmental monitoring for the Observatory Programme and using this framework provide a baseline environmental monitoring assessment for the first year.

Environmental impacts of CAP Reform – Assessment of implications of farm level changes on environmental outcomes

- To provide an updated and enhanced assessment of the potential impacts of CAP Reform on the environment by investigating current and predicted trends at the farm level and highlighting the implications for the environment of these changes. The project will contribute to first year of programme by providing early warning signs of any changes that could have significant environmental impacts.

Quantitative approaches to assessment of farm level changes and implications for the environment

- To provide a systematic review of the scientific evidence base that the Observatory Programme can draw on, linking agricultural and farm level change to the environment. It will then undertake a number of case studies in these areas. The project will help in developing the work of the Observatory Programme in subsequent years.

Case Study - Changes in Set Aside

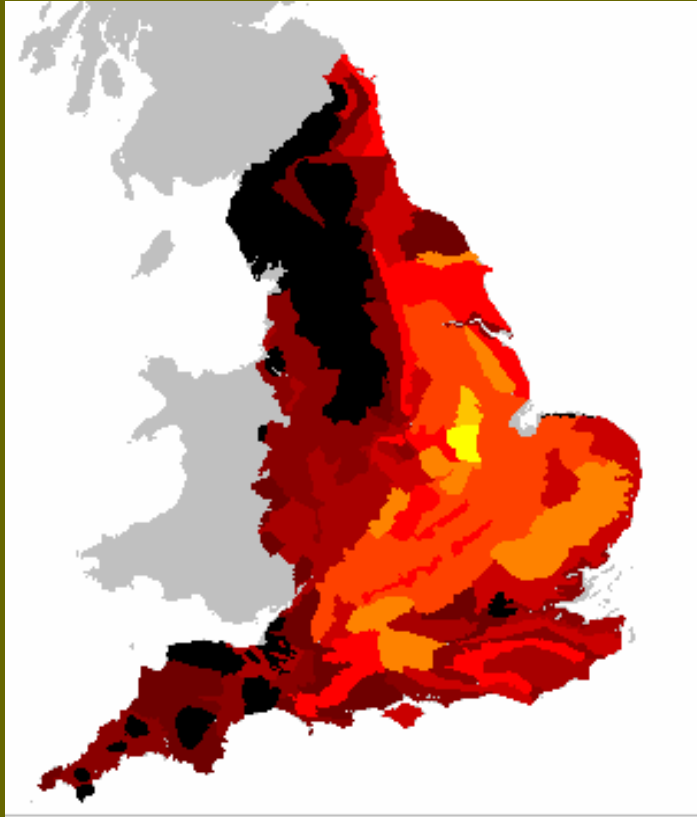
- Set-aside originally introduced in 1988 as a means of dealing with over-production
- Whilst the main motivation for set-aside has continued to be control of cereal production, the scheme has generated significant environmental benefits:
 - reductions in diffuse pollution
 - stubble left over winter, providing feeding habitat for farmland birds
 - naturally regenerated set-aside provides good habitat for many birds in breeding season.
 - Set-aside strips in arable field margins protect hedges

Case study: Changes in set-aside

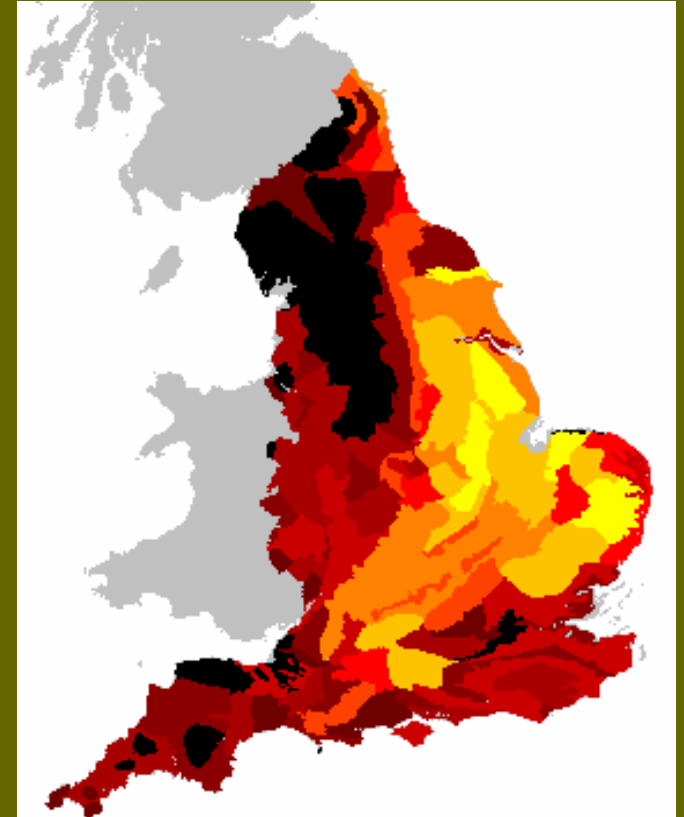
- Significant changes to set-aside arrangements under SPS
- Temporary grassland, vegetables, sugar beet, etc. now included in set-aside calculations.
- Project aims to study changes in the areas, spatial distribution and types of set-aside in the first year of the SPS and hence assess likely environmental impacts.
- Using data from 2005 June Survey (Census)
- Also SPS application data (not yet of sufficient quality, but expecting fresh download within next few days)

Case study: Changes in set-aside 2004

2005



Lighter shading represents higher areas of set-aside or fallow



Case study: Changes in set-aside

- Using June Survey data for 2004 and 2005 we can see change in national distribution
- Maps show set-aside and bare fallow as some land previously recorded as set-aside is now bare fallow, although no change in management.
- Results are provisional
- Total area up by around 100 thousand ha, indicating that much land withdrawn from production, above 8% compulsory set-aside.

Methods to be applied for Observatory Programme

- Use of multi disciplinary teams
- Focus on more integrated approach to understanding impacts of CAP reform on the environment
- Use of GIS data and tools
- Greater use and development of Defra agricultural statistics to link to environment

Links to RELU programme?

- Significant common areas of interest in understanding agriculture's impact on the environment and implications of CAP reform
- Observatory aims to make use of wide range of data and analysis and where possible enhance monitoring data
- Observatory to be “user” of results of relevant RELU projects
- Scope for Observatory to help out on specific data queries relevant to agriculture and the environment
- Potential for interaction/dialogue as projects proceed

What will be value added of Observatory Programme?

- Sustained monitoring of impacts of CAP reform on environment
- Aims to draw together wide range of information and research to present 'real world' view
- Keeps focus on identifying early impacts of farm change on environment;
- Works towards improved evidence base

Challenges for Observatory Programme

- Development of framework for providing early warning signs of negative environmental impacts
- Numerous policy and market drivers – 2003 CAP Reforms one part of overall picture
- Improving coordination of Observatory Programme with programmes addressing the social and economic impacts of CAP Reform