Natural England Board

Meeting: 9
Date: 13 February 2008

Paper No: **NEB PU09 06**

Title: **Natural England's Policy on More Sustainable Agriculture – a scoping paper**

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1. Purpose

1.1. This paper presents the recommended scope of Natural England's policy on More Sustainable Agriculture.

2. Recommendation

2.1. It is recommended that the Board confirms the scope of this policy, and agrees to its development.

3. Natural England's long-term vision for agriculture

3.1. Our long-term vision for agriculture, discussed at the April 2007 Board meeting is that:

- farmed landscapes across England will be valued for the public goods they deliver in addition to the value of the agricultural products they provide;
- farmers who provide environmental goods and services will be appropriately rewarded for their delivery;
- land management will be most financially rewarding where it is environmentally sustainable;
- agricultural production will be appropriately integrated with a range of other land uses across the landscape, such as wind energy development, the provision of habitat for wildlife, recreation and tourism;
- agricultural land use will strongly reflect the natural characteristics of different areas of the country;
- consumers will purchase food and other agricultural products on the basis of where it comes from and the sustainability of the production practices used;
- agricultural land will actively contribute to the connection of ecosystems and habitats across the landscape; and

- farming will be less energy and resource intensive.

4. Policy context

4.1. Over 70% of England is currently managed for agriculture. Farmed landscapes are of value for their environmental services such as biodiversity, landscape character, natural resource protection, public access and health benefits, as well as for their agricultural products.

4.2. Policy drivers include increasing pressures on land use, CAP reform, increasing global trade and WTO reform, technological developments and sharp increases in market returns in some sectors. The current universally applied model of multi-functional agriculture may be more difficult to deliver in areas with high market returns (where, for example, uptake of agri-environment schemes tends to be low). Where agriculture is no longer economically viable, alternative land uses could deliver greater environmental benefits but viable long-term land management systems will need to be found.

4.3. The policy scope encompasses production of food and other products from agricultural land, together with related processing and consumption processes. It should be viewed in the context of our strategic work on sustainable land use and related policies including CAP reform, water and soil. Annex 1 breaks down agricultural systems into key environmental, social and economic components, and describes the changes needed to each in to move from conventional industrial systems through to fully sustainable practice. Some of these are fully within Natural England's remit, and can therefore be directly influenced by our policies and actions, for example biodiversity and landscape character; others will be impacted as indirect effects of our work, such as profit and local employment. Our policies need to be cognisant of both their direct and indirect impacts.

5. Principles

5.1. Despite some recent improvements, agriculture and related food chain activities have significant environmental impacts:

- they rely heavily both directly and indirectly on non-renewable fossil fuels for inputs and processes;

- agriculture accounts for almost half of methane emissions and over two-thirds of nitrous oxide emissions. Land use changes to cropping are a major source of CO_2 emissions;

- the rate of decline of the Farmland Birds Index (an indicator of the health of farmland wildlife) has slowed but not yet started to rise;

- for agricultural landscapes, in almost 40% of Character Areas past losses of character either showed no sign of reversal or change was continuing to transform their character[1] (especially in central and southern England and the West Midlands);

[1] http://www.cqc.corg.uk/results_head98-03.html

- looking at their full life cycle, food and drink are the largest single source of greenhouse gas emissions associated with UK household consumption[2].

5.2. In the light of this, the policy scope is based on four principles:

- avoid using practices that damage the natural environment, and adopt practices which enhance the natural environment;
- restore then maintain the ecological processes on which agriculture and food production ultimately depend;
- take account of the varied geographical impact of agriculture on landscape in advocating changes to agricultural structures and systems;
- avoid using land of high environmental value for intensive agriculture and ensure that where such land comes out of agricultural production it is managed to maximise environmental benefit.

Policy scope

6.1. In considering the scope of our policy it is recommended that consideration is given to all aspects of agriculture, from production to consumption, as described in the table below.

Farming		**Processing**	**Consumption**
Inputs	Growing and rearing	Post harvest to retail sale	Retail purchase to consumption
Choice / use of inputs to the farm, their production and delivery	Planting / conception to harvest / slaughter and all associated activities	All processing and distribution activities	What the end consumer does
Energy – energy use and carbon footprint throughout the chain			
Waste – For each stage what is produced and how waste is reduced, reused and recycled			

6.2. It is recommended that our policy on more sustainable agriculture encompasses the following issues:

- the need to review, within a wider sustainable land use strategy, the balance between the area of land used for agriculture and for other land uses;
- the need to review the extent to which agriculture will continue to deliver other benefits across England and to identify the geographical areas where this is most and least likely;
- that England's agriculture operates in a global marketplace therefore global environmental standards for agricultural products need to be developed and taken into account in WTO negotiations;

[2] Francis, *The Impact of UK Households on the Environment*, Economic Trends 611, October 2000

- that further CAP reform is essential to support more sustainable agriculture across the EU. This includes a large-scale transfer of funds from income support to support for sustainable rural development, to ensure that public funds are paying for public benefits;

- that there is a place for both conventional and organic farming systems in achieving more sustainable agriculture. Both systems need to improve practices in relation to climate change mitigation and adaptation;

- that most agriculture and related processes are not environmentally sustainable at present but, with significant improvements, they have an important role in helping to achieve the wider goal of sustainable land use (see Annex 1);

- that in the short to medium term, to make agriculture more environmentally sustainable across England we need to:

    a) engage with and encourage land managers to achieve continuing environmental improvements using an incremental approach, where success in, for example, delivering some of the simpler options under ELS leads to more complex and demanding management delivering greater environmental benefits;

    b) explore the role of markets in helping to provide incentives for sustainable land management;

    c) develop, demonstrate and promote models of best practice sustainable systems;

    d) review how policy tools can be used most effectively to deliver our objectives across different farming systems. This includes assessing the extent to which environmentally sustainable systems can be financially viable.

- that in the medium to longer term, alternative mechanisms need to be developed to safeguard the natural environment and which maintain geographical distinctiveness. These mechanisms include regulatory regimes and approaches that are less reliant on continual annual payments.

Annex 1 Key components of sustainable agriculture and characteristics at selected points along the continuum from conventional systems to best

Key component or process	Conventional industrial System	More Sustainable System	Best practice sustainable system
Biodiversity	Incidental	Encouraged	Embedded
	Has historically depressed biodiversity	Use of agri-environment to pay for compensatory wildlife habitat. Traditional livestock systems with low inputs	Biodiversity is a critical part of functionality - nutrient cycling, pest / disease control etc Good practice delivers both connectivity and permeability
Landscape character	Simplified / Uniform	Simplification deferred	Takes into account local landscape character
	Tendency for 'efficiency' to simplify landscapes – small scale features uneconomic to manage.	Maintenance / management of non crop landscape features often supported by agri-environment schemes.	Good planning and management retains and enhances landscape character and diversity.
Access, recreation and health	Incidental	Enhanced	Part of marketing mix and providing public benefit
	Provided to the legal minimum and discouraged by intensive livestock systems.	Additional access encouraged particularly using agri-environment schemes and as part of industry promotion.	On-farm provision and, where possible, landscape scale links as part of providing wider public benefit. Showing the farm to the consumer an important part of product identity.
Soil	Provides a growing medium.	Organic matter and structure enhanced	Ecosystem processes & carbon managed & enhanced
	Deficiencies made up with inputs. On fragile soils / slopes erosion loss can exceed rate of soil formation. $C0_2$ emissions from e.g. cultivation, drainage, over-burning and over-grazing.	Careful management enhances organic matter content and reduces structural damage. Nutrient input matched to crop demand.	Active management of soil biodiversity to enhance water retention, carbon content, nutrient cycling and nitrogen fixation.
Air	Defined by legal requirements	Enhanced practice reduces impact. Greater awareness of GHG impacts.	Impact minimised
	Use of mineral N significant source of CO_2 emissions. Fertiliser use, cultivation practices and intensive livestock systems all substantial contributors to aerial nitrogen pollution.	Reduced fertiliser use and enhanced cultivation practice reduce pollution.	Manufactured fertiliser avoided. Enhanced manure management (digestion / composting) minimises emissions.

Water **Key component or process**	Use defined by regulation	Use modified by enhanced practice	Use minimised by best practice and water recycling
	Used water seen as waste.	Water use and	Pollution further reduced
	Water bodies act as receptor for (particularly) diffuse pollution and silt. Poor soil management reduces water infiltration capacity of land, contributing to flash flooding and low summer flows. Water abstracted for irrigation lowers water table.	management optimised and pollution reduced by use of IFM techniques.	by avoidance of inputs. Surface run-off minimised by use of cover crops and practices to increase permeability also enhance water retention. Techniques and technology minimise water use and maximise recycling.
Local Employment	Reduced by farm 'efficiency' savings	Reduced by efficiency, skills improved by training	Enhanced through diversified opportunities
	Reducing labour costs is a key goal.	Labour units reduced but remaining staff more skilled.	Labour requirement increased by system complexity, local processing and marketing, new opportunities from diversification & environmental technology and management.
Profit	Externally driven	Mainly externally driven	More diverse origin – local & external
	Profitability critically dependant on world prices. Farmers usually price takers. Environmental externalities not reflected.	Additional emphasis on cost control through input reduction using intelligent (and less risk averse) IFM type management. Greater reflection of environmental externalities (e.g. via market standards).	Market standards reflect environmental externalities. Producer owns or has stake in the 'brand'. Increased connection between producer and consumer. Farmers become price setters More of the final value flows back to the producer.
Community Involvement	Irrelevant	Dependant on individual farmer	Important part of product identity
	Of little value to the farming process and discouraged for intensive livestock production.	Of little direct value but some farmers undertake as part of industry wide promotion.	Part of building customer loyalty, job satisfaction and quality of life.

Key component or process	Conventional, industrial System	More Sustainable System	Best practice sustainable system
Value chain integration	Focused on logistics cost reduction	Additionally focused on operations cost reduction	Focused on adding value
	Efficiency and economy of scale the most important considerations.	Better use of inputs the main differentiator.	Segments the market and aims to supply smaller product batches to diverse customer requirements.
Energy efficiency	Poor and based mainly on fossil fuels	Improved efficiency	Maximised
	All aspects of agriculture (from input production to out of town shopping) heavily dependent on fossil fuels.	Greater awareness of carbon footprint and GHG impacts. Reduced use of fossil fuels at some points in the chain. Developing use of environmentally friendly renewable energy.	Energy use minimised. Use of fossil fuels avoided where possible. More environmentally friendly renewable sources developed in line with best available technology.
Waste	Regulated	Economic optimisation	Waste minimised and recycling maximised
	Reduced / controlled to the extent required by regulation. Use of existing recycling channels.	More detailed understanding of costs leads to further reductions where these are economically justified. Development of new recycling channels where economically neutral.	'Waste' becomes an input to the next cycle of production or a by-product to be used as a business asset. Unavoidable losses minimised and recycling maximised.

Best practice sustainable agriculture also requires good integration between all the above components, for example in addressing climate change adaptation and mitigation and in achieving a positive greenhouse gas balance from agricultural land management.