

Environmental Issues in Crop Production - the UK View

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agri benchmark Cash Crop Conference 2014

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Introduction



The context is that of an increasingly urban population that is concerned about rural matters.

Environmental management is central to the UK Government's agricultural policy

NGOs, including the RSPB, Friends of the Earth are effective communicators and work closely with the media.

Reduction in releases of Nutrients to Groundwater

The key drivers of change in terms of environmental pressures from land management practices continue to be reductions in fertiliser applications



- Between 2000 and 2012 the soil nutrient balances for nitrogen and phosphorus are estimated to have fallen by 17% and 25%, respectively, representing a reduction in the surpluses of nutrients that can potentially be lost to the environment.

Driver: Diffuse Pollution of Groundwater
Issue: EU Water Framework Directive

Competing Demand for Water



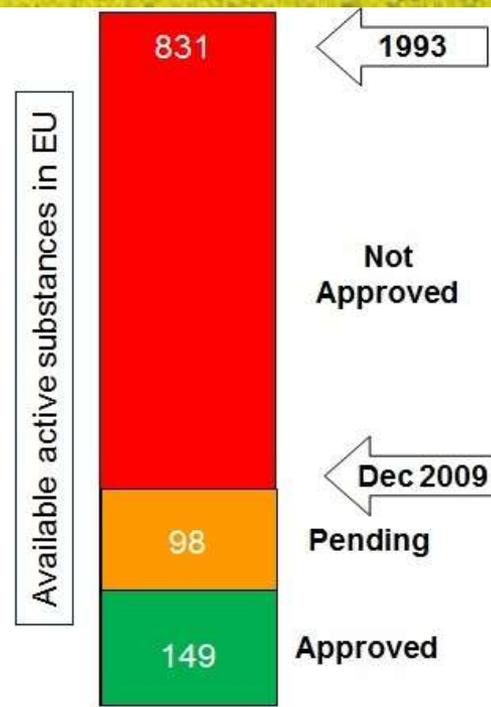
- Groundwater supplies around one-third of our drinking water – and as much as 70% in London and the South East. As the population increases, water security will become a key issue.
 - Water abstraction systems will need to respond to pressures from climate change, including increased variability and reduced summer flows.
 - Agriculture only accounts for about 1% of the total licensed water, but government must ensure that farmers and land managers receive a fair allocation of water to meet the future challenges of food production and land management
- Type: Resource
- Driver: The EU Water Framework Directive

Loss of Active Ingredients in Crop Protection



Fewer products are available to growers:

- Regulatory hurdles are increasing worldwide
- Proportion of global investment in agriculture going into Europe has dropped from 33% in 1980's to 16% in 2013 (7.7% if you include GM)
- 4 new active ingredients per year in 1980s to 1.2 per year today. For example, groundwater regulations in Europe



Mechanical Weed Control



Industry Initiatives

- Retailer's Assurance Schemes
 - e.g LEAF Marque
 - Red Tractor
- Management of Resources on Farms
 - Soil nutrient balances
 - Fuel for cultivation and transport
 - Electricity for irrigation or coldstores
- Environmental Aims of the Farm Business
 - Low intensity farming
 - Environmental benchmarking initiatives



Sustainable Intensification Research Platform

To investigate ways to increase farm productivity while reducing environmental impacts and enhancing ecosystem services

1. Integrated farm management for improved economic, environmental and social performance
2. Opportunities and risks for farming and the environment at landscape scales
3. Scoping study on the influence of external drivers and actors on the sustainability and productivity of English and Welsh farming



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Soil Management

In Defra's Natural Environment White Paper, by 2030:

- all of England's soils to be managed sustainably
- the threats to soil to be reduced or eradicated

In particular:

- Organic matter
- Soil quality
- Appropriate management of min till systems and rotation
- Minimising soil erosion



Products Currently Proposed as Candidates for Substitution

Fungicides	Insecticides	Herbicides
Cyproconazole	Lambda-cyhalothrin	Diflufenican
Cyprodinil	Pirimicarb	Flufenacet
Difenaconazole		Mecoprop
Epoxiconazole		Metribuzin
Fludioxonil		Metasulfuron methyl
Isopyrazam		Nicosulfuron
Prochloraz		Pendimethalin
Propiconazole		Tepraloxydim
Qunioxyfen		Tri-allate
Tebuconazole		

Sustainable Production System



Utilising crop varieties with a high ratio of productivity to use of externally- and internally-derived inputs;

Avoiding the unnecessary use of external inputs;

Harnessing agro-ecological processes such as nutrient cycling, biological nitrogen fixation, allelopathy, predation and parasitism;

Minimising use of technologies or practices that have adverse impacts on the environment and human health;

Quantifying and minimising the impacts of system management on externalities such as greenhouse gas emissions, clean water, carbon sequestration, biodiversity, and dispersal of pests, pathogens and weeds