

# Knowledge Exchange and the Survey of Farm Businesses

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# Wensum DTC – Knowledge Exchange Events



**07 JUN 11: Visit by Danish agronomists and farmers**

**22 JUN 11: Wakelyns Farm Open Day, Fressingfield, Suffolk**

**22 JUN 11: National Agronomy Centre 'Research into Practice' Open Day**

**24 NOV 11: Meeting for NFU members at Salle**

**15 MAR 12: UEA-Easton College Centre for Contemporary Agriculture Open Day**

**19 MAY 12: Wild about the Wensum, Pensthorpe**

**21 JUNE 12: TAG Open Day, Morley**



**08 JUN 11: Frontier Agriculture Farm Open Day, Gressenhall**



**13 JUL 11: DEFRA / Environment Agency Visit**

**09 SEP 11: Wensum DTC Student Research Day**



**22 MAR 12: World Water Day Festival in The Forum, Norwich**

# Farmer-led Monitoring

## Finding volunteers

- Three farmers at the Wensum DTC meeting for NFU members on 24<sup>th</sup> November signed up to take part in our farmer-led monitoring programme

## Farm visits

- Farmers were visited during March and given nitrate test strips and log books
- Four field drains on each farm were selected to capture drainage from different crop types



## Monitoring

- Monitoring of field drains has taken place at regular intervals. The test strips have limited sensitivity, but can identify variations between crops.

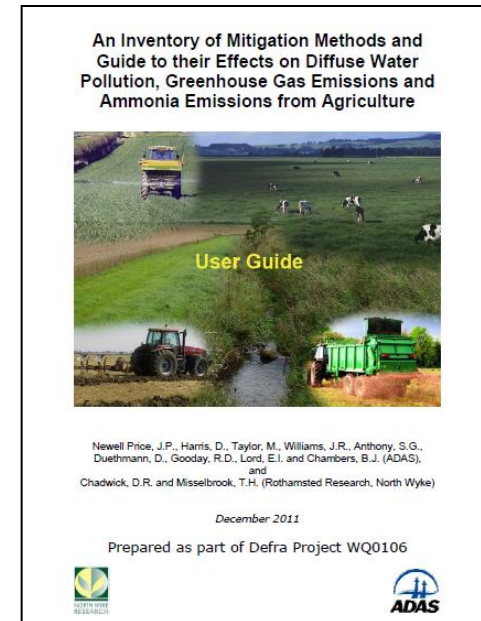
## Further investigation

- We plan to repeat the exercise in autumn 2012 with potentially more sophisticated monitoring equipment, such as hand-held colorimeters.

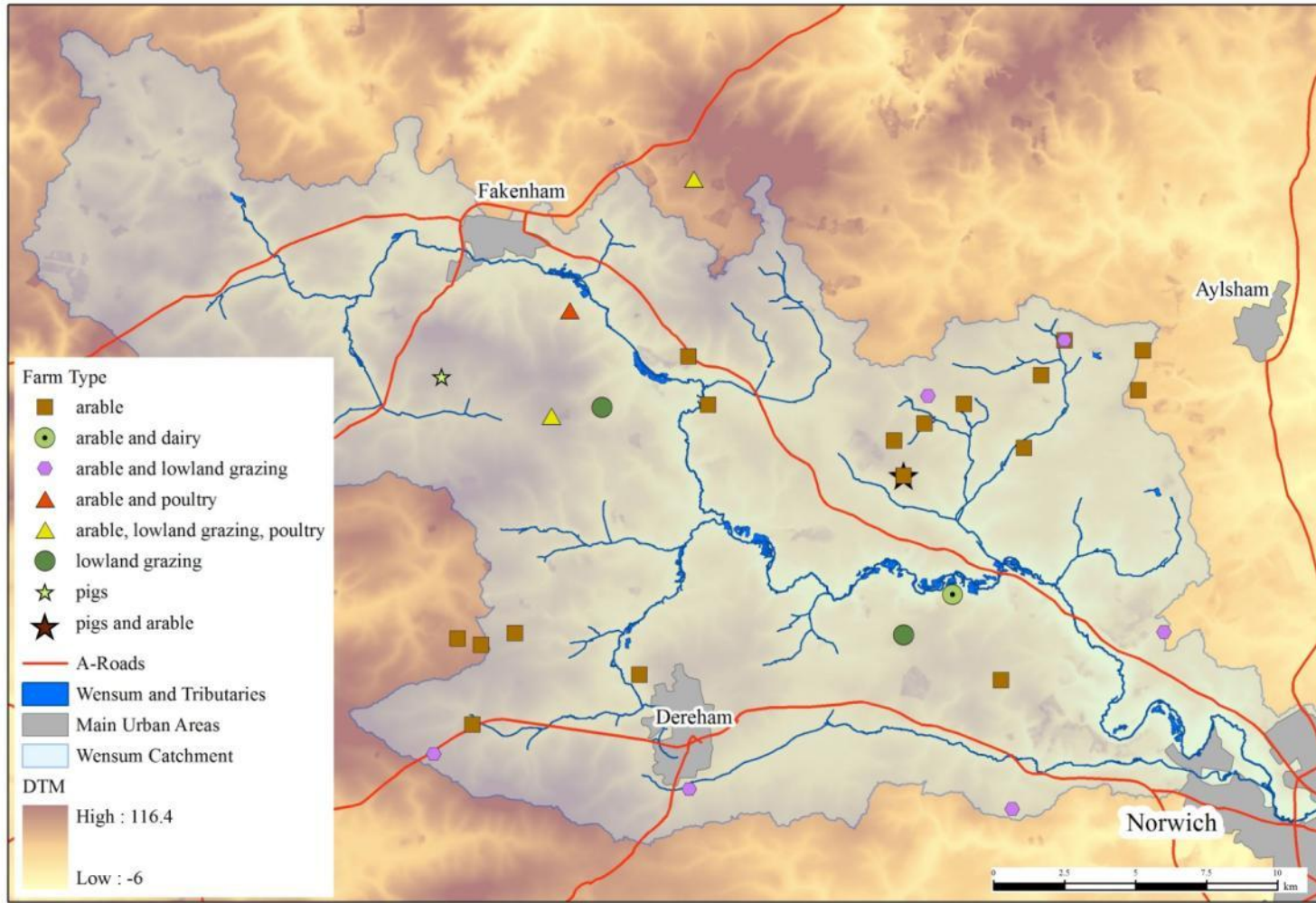
# Baseline Farm Business Survey

Face-to face interviews have been conducted in each DTC catchment to obtain details including:

- Business characteristics
- Livestock holdings, cropping, machinery
- Manure and slurry management
- Involvement in agri-environmental schemes
- Adoption of diffuse pollution mitigation measures
- Current farming challenges and future objectives



# Wensum Farm Survey

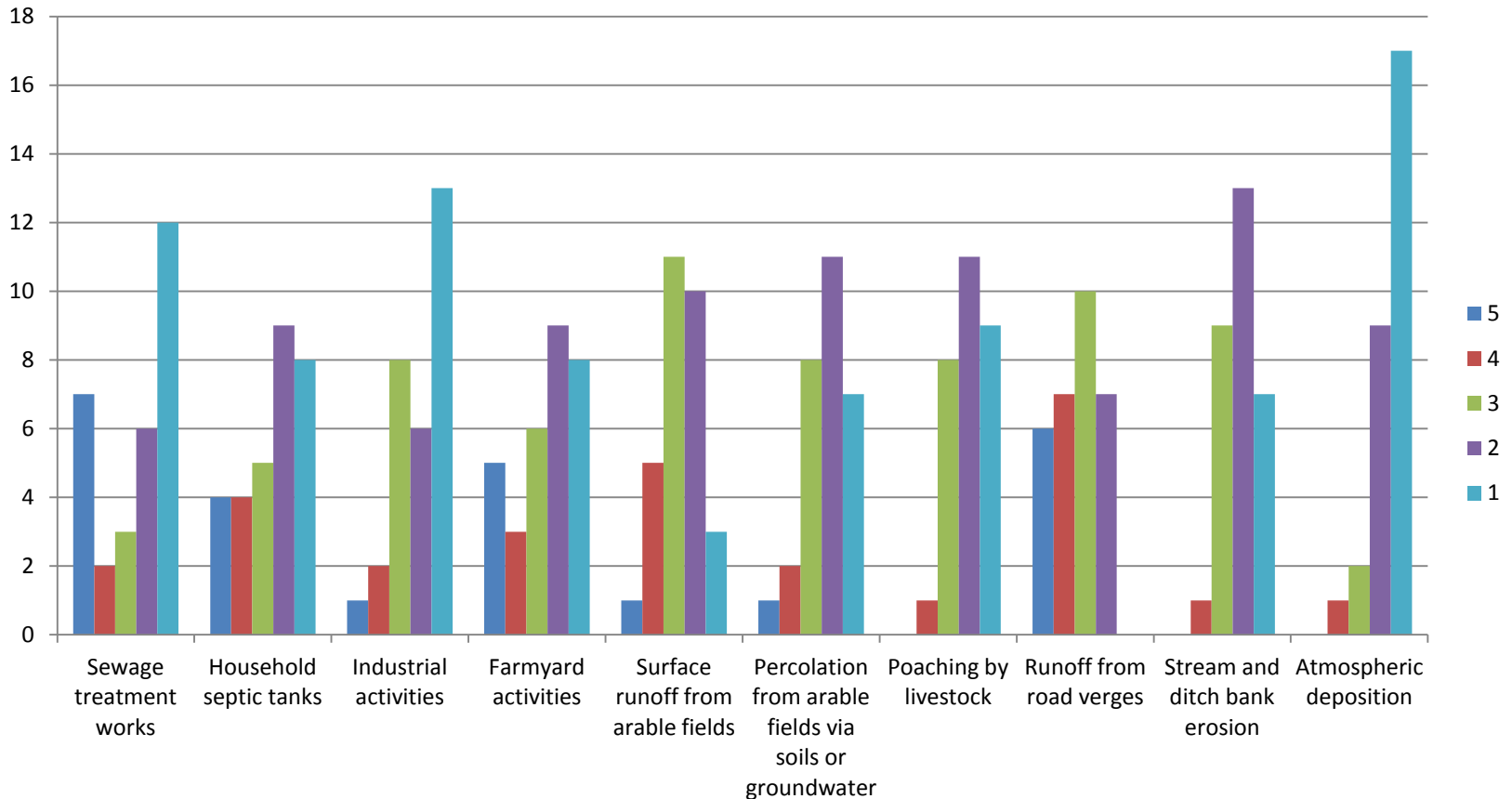


Thirty one farms surveyed in January-March 2012. Data now being analysed.



# Some Example Results

Question: How important would you regard the following as sources of sediment or chemical pollutants in streams and rivers near your farm?

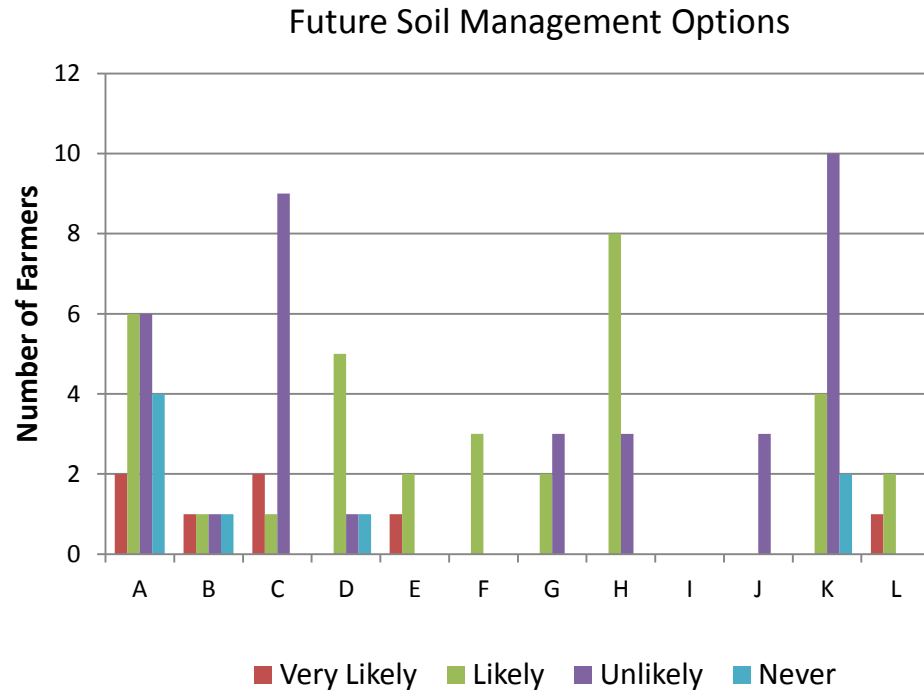


5 = very important, 1 = of little importance

# Some Example Results

Question: Do you use any of these soil management options to help mitigate diffuse pollution and would you use them in the future?

Soil Management Options	Number of farmers who answered Yes
A Establish cover crops in Autumn	10
B Early harvesting/establishment in Autumn	23
C Cultivate land for crops in Spring rather than Autumn	15
D Adopt reduced cultivation systems	21
E Cultivate compacted tillage soils	24
F Cultivate and drill across slope	22
G Leave Autumn seedbed rough	23
H Manage over-winter tramlines to reduce run-off	15
I Maintain and enhance soil organic matter levels	28
J Establish in-field/riparian grass buffer strips	24
K Loosen compacted soil layers in grassland fields	7
L Maintain field drainage systems	22



# Some Example Results

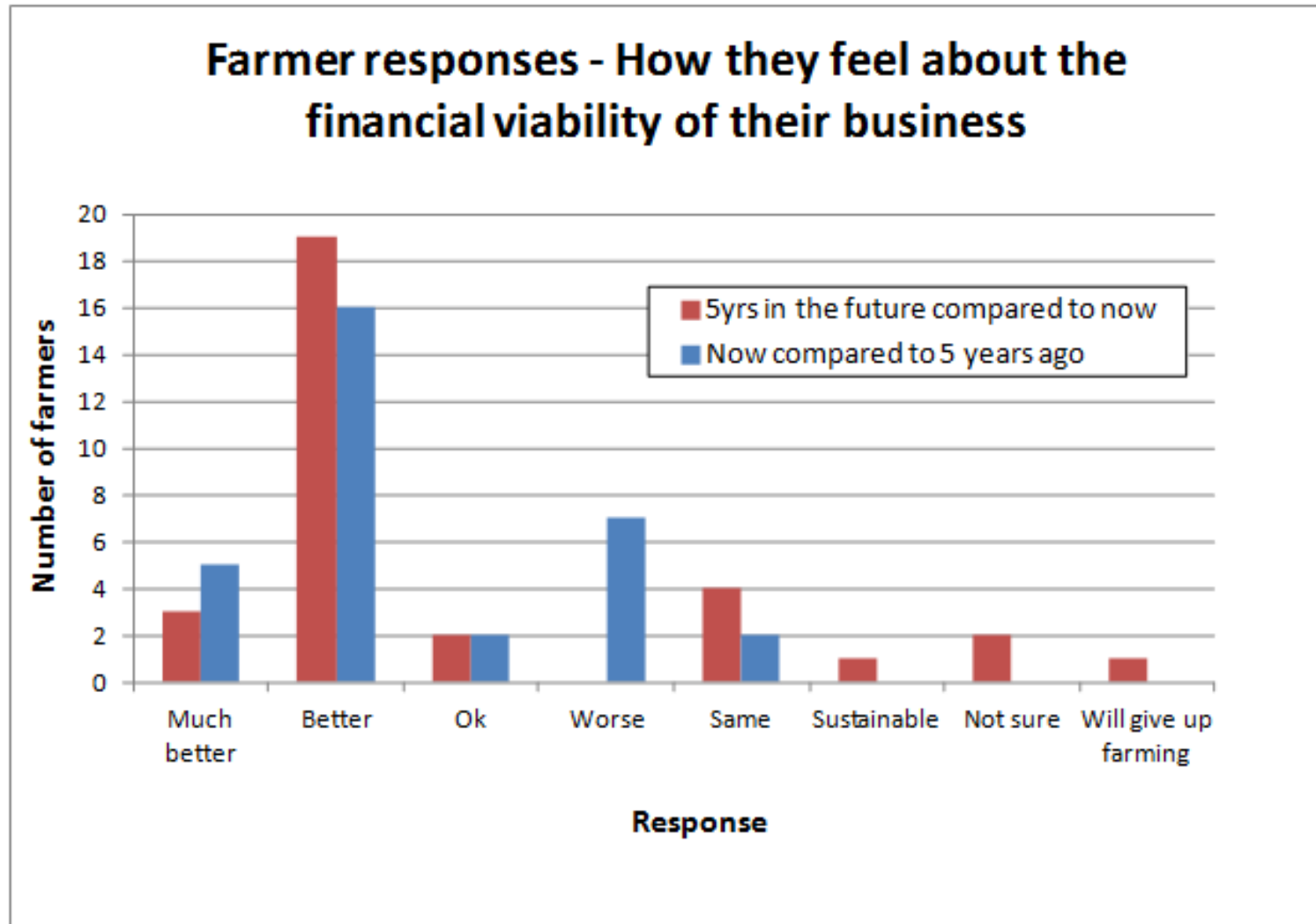
Question: How important would you regard the following longer term objectives for your farming business?

Objective	5	4	3	2	1	0	Average
To produce more food	15	6	4	5	1	0	3.94
To be a good steward of the land	24	6	1	0	0	0	4.74
To increase profitability	25	5	1	0	0	0	4.77
To improve soil quality	25	5	1	0	0	0	4.77
To hand on a viable business to the next generation	24	6	1	0	0	0	4.74
To increase wildlife on the farm	18	6	7	0	0	0	4.35
To improve water quality in local streams and rivers	16	11	3	1	0	0	4.35
To reduce the impact of farm activities on global warming	8	10	8	1	3	1	3.52
To upgrade the farm buildings and equipment	12	12	2	3	2	0	3.94

5 = very important, 1 = of little importance



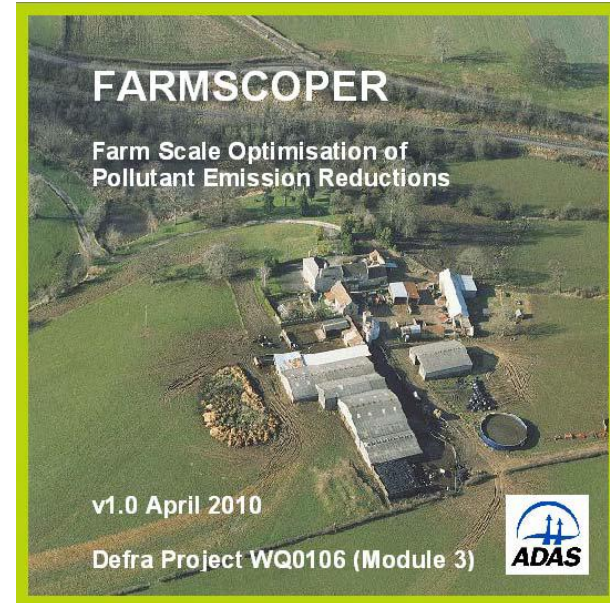
# Some Example Results



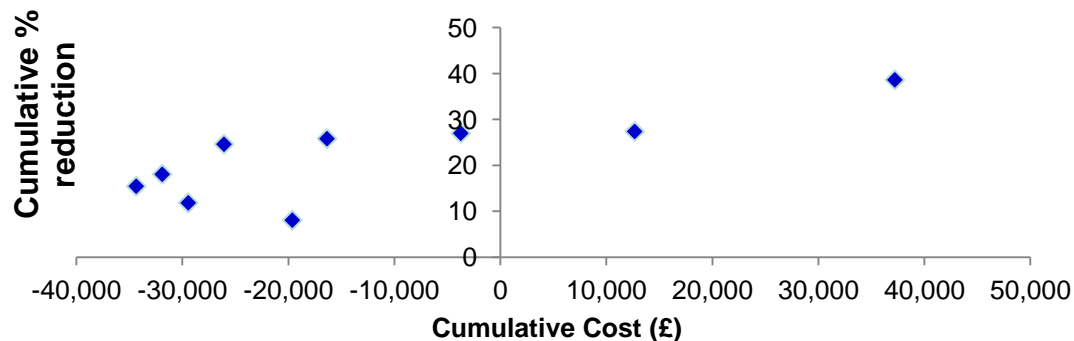
# Cost-Effectiveness of Measures

The *Farmscoper* software provides a tool box for farm scale calculation of pollutant losses and cost effective design of mitigation combinations.

The software has been used with data from local farms. The initial results highlight that expensive measures may be needed to achieve large reductions.



**Cumulative cost curve for nitrate-N**



# Mitigation Measures Plan

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# Types of Mitigation Measures

## Tackle the source

1



Good farming practice can prevent runoff and erosion at source. There are also some ELS options available to help you manage the source of pollution including: undersown spring cereals, management of maize crops to reduce soil erosion and winter cover crops

## Slow the pathway

2



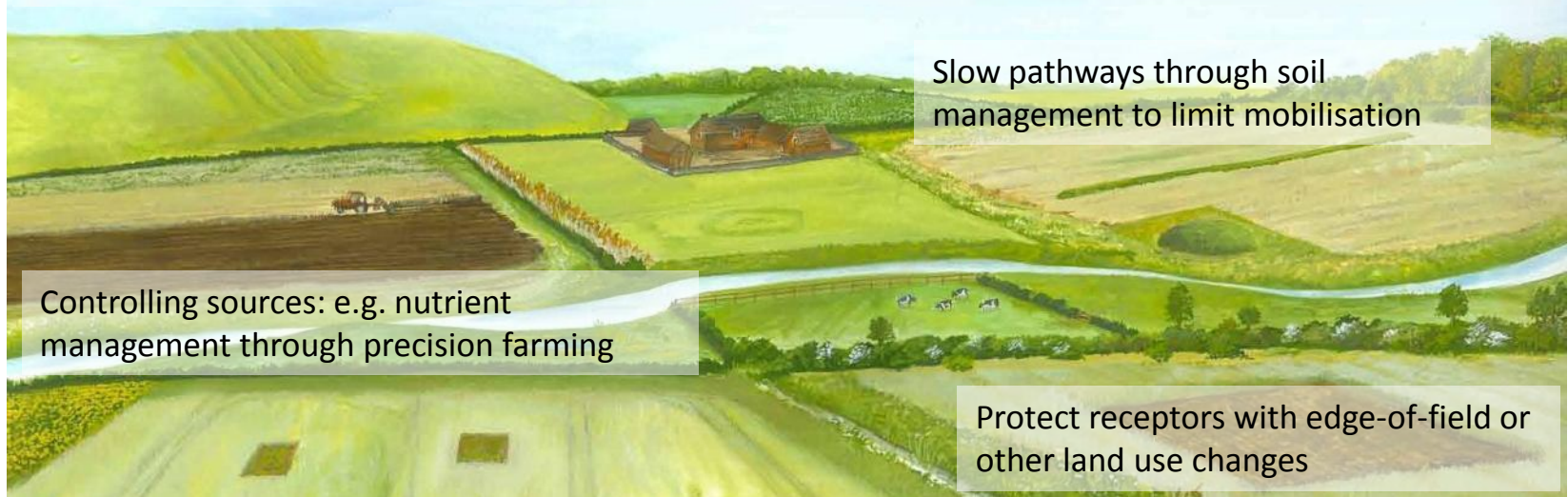
If you cannot control the source of a problem, there are a suite of ELS options available to help you manage the pathways of runoff and erosion including: in field grassed areas, beetle banks, taking field corners out of production and the sensitive management of grassland.

## Protect the receptor

3



There are some ELS options available to help you create a barrier to pollution including buffer strips or watercourse fencing. It is important to remember receptor options represent the last line of defence for streams and ditches so always think about how you can tackle problems at source and/or better manage the pathway of any water flow from the field.



Slow pathways through soil management to limit mobilisation

Controlling sources: e.g. nutrient management through precision farming

Protect receptors with edge-of-field or other land use changes

Campaign for the Farmed Environment [www.cfeonline.org.uk](http://www.cfeonline.org.uk)

# Possible Measures in the Wensum DTC

Source Minimisation	Pathway Interception	Receptor Protection
Reduced cultivation methods (e.g. strip tillage) and use of cover crops	Rural sustainable drainage systems (RSuDS) to act as sediment and nutrient traps	
<i>Precision farming (e.g. nutrient mapping, variable rate applications)</i>		<i>Water meadow restoration</i>
	Buffer strips and grass field corners (already in place)	
	Extended buffer strips (HLS)	<i>Tree planting along selected watercourses</i>
Farmyard biobed to treat run off from sprayer spill and washdowns (CSF Capital Grant)		<i>Fencing and alternative water supplies to prevent livestock poaching of stream banks</i>

Defra have recently approved funding to implement and partially evaluate some of these measures over a 5 year term to **May 2017**. Further funding will be needed to support and extend this work.

