



# A clear solution for farmers

CATCHMENT SENSITIVE FARMING

## Bossington Estate

Tackling run-off on a mixed farm in Hampshire

### River Test and Itchen Catchment (29)

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### Site Selection

Bossington Farm forms part of a 1600 Hectare estate at Houghton near Stockbridge. The Estate is located within the catchment of the River Test, a world-renowned classic chalk river system. Agricultural land use within the catchment is predominantly arable, however farming activities at Bossington Estate also include outdoor pigs - 600 breeding sows - and a herd of 200 beef cattle. Crop rotations include grass ley and permanent grass, wheat, barley, oil seed rape, maize, potatoes and beans.

Wet weather surveys completed for a BSc thesis in 2003 and 2004 identified a number of fields where a combination of inherent and management factors resulted in soil erosion and surface run-off. The connectivity from individual fields to the Wallop Brook sub-catchment and main River Test were mapped, and the information provided to the Test and Itchen Landcare Project. The Landcare project was a predecessor to CSF and had similar aims and objectives to reduce diffuse water pollution from agriculture.

The Landcare Project Officer followed up the study by completing a soil management plan, which was later used to inform an application under the Higher Level Stewardship scheme. In 2007 we are able to observe the outcome of an advice delivery programme with many similarities to CSF. Bossington Estate has since requested the assistance of CSF which has followed on from Landcare.



### Field 1: Broughton Road

Broughton Road field is used in the outdoor pig rotation. When pigs are present, there is a possibility of soil run-off following intense rainfall. Due to the absence of mitigation measures at the time, connectivity between the field, the road and the Wallop Brook - within 15 metres - was high, therefore a site deemed high risk due to its location was compounded by high risk due to management.

As illustrated by image 2, the field is currently spring barley undersown with grass, with 1. an 8-metre grass strip; 2. a 12 metre conservation buffer strip; and 3. a newly planted hedgerow. This relates to the HLS application option HJ5 'In-field grass areas to prevent erosion and run-off'. It is the intention to return pigs to this field as part of the rotation in Autumn 2007, however these measures combined with a reduced stocking density will offer a reduction in connectivity and increased protection.

## Fields 2 and 3:

### Bournes and Hayters

Bournes field and Hayters field exhibited run-off in 2003-4 via a drove - an unsurfaced track with public access - to the Wallop Brook. At the time, these steep fields were managed for outdoor pigs. It was observed by the CSFO that field gateways, public footpaths, tracks, and managed ditches combined to deliver sediment from field to river. Turbid water entering the river initially flowed left bank downstream, becoming fully mixed across the river by approximately 25m downstream. The river was red/brown in colour and the bed was not visible.

The Soil Management Plan completed in 2006 by the Landcare Project for Bournes field identified the pathway between the field and properties and the Wallop Brook, signalling a high inherent risk. Removal of pigs or movement to the top of the slope in conjunction with suitable mitigation was recommended. The plan also promoted ploughing across the slope, a rough seedbed, and a buffer. As illustrated by photographs 5 and 6, Bournes field now incorporates a buffer strip under HLS option HJ5. The HLS handbook describes the aim to 'filter surface run-off and to reduce the amount of eroded soil, organic material, nutrients and pesticides reaching the watercourse.

For Hayters field, the plan recommended the avoidance of using steeper land, the establishment of a good sward cover prior to occupation, and the layout of tracks and pens to counter run-off. As shown by photographs 5 and 7, Hayters field now incorporates HLS option HD7 'Arable reversion by natural regeneration' in addition to HJ5. The HLS handbook promotes this option to target protected features at risk of damage through the standard method of grassland establishment, which would involve some form of cultivation such as ploughing. This option may also help to protect soils from erosion and reduce diffuse pollution.

In 2006 the field was in poppies, and in 2007 is in wheat. Pigs remain at the very top of the field where the land is less prone to run-off. This is shown by photograph 8.

In addition to the measures outlined above, reduced stocking density (also recommended by the Landcare Project Officer) from 10 sows per acre to 7 sows per acre has noticeably reduced poaching in fields, and consequently reduced erosion and runoff. In support of this statement, photograph 9 shows a field which has been occupied by sows for 1 year, and exhibits good ground cover.

Connectivity is also an issue at Bossington. As part of the ongoing development of the Estate HLS agreement, Landcare and CSF have proposed a special project to address serious runoff (originating from steep fields and infrastructure) passing down a track and onto the road. This water then continues straight across down a track to the river, and down the road for approximately 0.5 mile before entering ditches leading to the main Test (Fig 10). This has also led to issues with mud on the road and safety concerns through flooding. The special project, to be implemented in year 3, will address the runoff through engineering work tackling both infrastructure and drainage issues.

With the continuation of advice delivery through CSF, we may be able to demonstrate similar scenarios where management plans produced through project funding show positive change on the ground.

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