

Looking after the **Wyre**

Including Pilling Water/Ridgy Pool and the River Cocker

Newsletter – issue 5 – Autumn 2008

In this issue: Soil Management

'Upon this handful of soil our survival depends. Husband it and it will grow out food and our shelter and surround us with beauty. Abuse it and the soil will collapse and die taking man with it'

(from Sanskrit literature, 2000 – 1500 BC)



Top soil: A well-structured top soil will have a continuous network of pore spaces to allow drainage of water, free movement of air and unrestricted development of roots. Maximising root development results in more efficient uptake of nutrients. A good structure reduces the amount of surface run off which can transport soil particles and nutrients to connected water courses. Maintaining good soil drainage also has the potential to reduce the impact of flooding.

Sub soil: A sub soil can be well structured but also allow water to permeate slowly. Any land drainage operations or secondary treatments (e.g. sub soiling) that help maintain a freely drained aerated state will enable roots and biological activity to stabilise and improve the sub soil. Roots from some crops can penetrate to depths of 1 metre and beyond if conditions are ideal.



◀ **Good soil structure in the Wyre Catchment.**
Note the good mix of aggregates and well developed root structure.

Poorly structured soil in the Wyre Catchment. ▶
The black area (centre picture) is manure and sod which has not been broken down due to anaerobic conditions in the soil. This can be caused by ploughing in wet conditions or, as possible in this case, over working of the soil during grass reseeding resulting in excessive compaction.



Assessment of soil structure, Wyre Catchment. Mark Tripney:

Surveying mainly grassland fields in the catchment for the past 2 years the impact of the 2 wet summers has been clearly evident. Most of the poaching I have seen has been the result of perched water caused by compact top and sub soils that are not allowing the water to percolate through them. Quite often, on inspection, soils are actually drier 150 mm below the surface. Hard pans have formed in the soil profile due to various factors (e.g.?) preventing the water from moving. The soft ground conditions have also lead to slight surface capping on fields used for silage cuts. True permanent pasture seem to have a more open structure to the soil profile than grass leys which appear to have a tighter structure.

This is probably due to overworking during reseeding resulting in a very compact top layer. GET YOUR SPADE OUT and examine soil on your farm.

**Soil should be approximately:
25% water, 25% air, 45% mineral
and 5% organic matter**

Compacted soils have poor root growth which:

- restricts the uptake of available nutrients, and makes swards more susceptible to “pulling”
- reduces the available water to the plant in dry(!) summers causing “burning off”
- increases the potential for poaching on grazing fields, and;
- increases the likelihood of direct or diffuse pollution by slurry and manures

Improving grassland soil structure

Surface capping or shallow compacted layers (pans) can be eliminated by spike aeration

Raymond Burrow, Mealbank Farm (River Lune Catchment):

‘We did some soil sampling in 2007 and it was clear when taking the samples we had a soil problem. The top couple of inches of soil were wet but dry below this surface layer. We got our local contractor in with an aerator in August 2007 and the difference in the aerated fields was very noticeable being a lot drier throughout the winter. We have since purchased our own aerator’



Peter and Robert Fare, Post Farm, (right) Wyre Catchment, have used an aerator for a number of years and found it beneficial to the surface drainage of the soil.



The Swardlifter (above) has been specifically designed for sub soiling grassland

For deeper pans some form of sub soiling is required:

Subsoilers or sward lifters should not be used at depth greater than 350mm (14”) as at depths greater than that they only produce a slot and do not fissure the soil.

If you have found a compacted layer (pan) at a shallower depth than this pull the subsoiler at a depth no deeper than 50mm (2”) below the bottom of the pan. One depth will not suit the whole farm.

Check that the field drains in the field are operating as subsoiling a field with a poor or non-operational drainage scheme can result in wetter field than you started with!

Subsoiling is best done in the late summer, after 2nd cut silage in fields that are to be aftermath grazed. 3rd cut and maize fields should be done as soon as the crop is off but only in dry conditions. No subsoiling of wet fields.

Notes:

Funding available for slurry and manure analysis.

2008 Soil Protection review to be completed by 31 December 2008

For further information contact Wyre Catchment Sensitive Farming Officer:

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www.defra.gov.uk/farm/environment/water/csf

The England Catchment Sensitive Farming Delivery Initiative (ECSFDI) is delivered in partnership by Natural England, the Environment Agency and Defra.



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