Soil Protection Review: choosing the correct environmental option

Requirements under Cross Compliance

If you are a Single Payment Scheme (SPS) claimant or are in receipt of support through certain schemes under the Rural Development Programme for England (RDPE), such as Entry Level Stewardship (ELS), you are required to complete a Soil Protection Review (SPR). The SPR is a requirement under the Cross Compliance Good Agricultural and Environmental Condition (GAEC) rules and it should be retained on the farm.

Cross Compliance requires the SPR to have been completed by 31 December 2010, or by 31 December of the first year that you have claimed, covering all of the agricultural land on your holding. You are also required to carry out an annual review by 31 December each year, giving you the opportunity to thoroughly assess the condition of your soil and put into effect new measures if required. However, if it becomes clear that the measures you have chosen are not working at any stage during the year; you must update your SPR to reflect this and choose more or different options that are more likely to solve the problem. You are also required to record access to waterlogged soil throughout the year and the actions taken to remediate the damage (part 4 of the SPR).

New arrangements for the SPR will be implemented from 2015 and further guidance will be released during 2014.

The purpose

The purpose of the SPR is to help you to identify degradation threats to soil on your holding. When soil is lost or damaged through compaction, erosion or loss of organic matter, it becomes less productive resulting in a reduction in crop quality and potentially lower gross margins. Soil erosion can also have a significant impact on water quality and aquatic ecosystems, contribute to localised flooding from increased runoff and cause additional problems, such as soil on roads. In addition, the majority of carbon lost from soils will eventually be released to the atmosphere and contribute to climate change. Selecting and carrying out appropriate measures to tackle soil-degradation threats will help prevent these problems.

Good soil structure is important for optimising crop yields, by

- reducing the risk of waterlogging; and
- allowing deeper and easier root penetration (making the crop less susceptible to drought stress, etc.),

This helps your business to be more competitive and more resilient to extremes of weather (something all too common over the last seasons).

It is important to be aware of potential risks associated with the soil-type and the different crops you are growing on your holding. Below is a case-study to demonstrate how the SPR has helped West Hall Farm to pinpoint damage to the soil and identify an appropriate remediation strategy.

West Hall Farm – case study

West Hall Farm experienced severe soil damage during 2012 in a field of sugar beet. The 'Land Use Measures' recorded in the SPR to prevent this from occurring were:

- harvest under dry conditions;
- use low ground pressure tyres; and
- drill and harvest across the slope.

Under normal weather conditions these measures would have been sufficient to prevent any major soil damage as the soil type is generally at the sandier end of a sandy clay loam. There is a slight slope and a minor water course so the field was identified as having a moderate risk rating.

However with the incessant heavy rainfall experienced in 2012, it was impossible to harvest under dry conditions. Indeed West Hall waited until the last day of the sugar beet campaign before the field was harvested and even then conditions were still wet.

When harvesting commenced, low ground pressure tyres were used but even with these and only half trailer loads, serious rutting occurred in areas of the field. This rutting was recorded in the SPR, and was identified as compaction to 20 inches deep in places. At this depth it was likely that field drains were affected. There was no run-off as the field was harvested across the slope and the slope itself was slight. However the ruts have caused significant soil damage leading to potential losses of yield in subsequent years.

As conditions dried out in the spring of 2013, the ruts were 'cured' by levelling with a subsoiler (the subsoil was still too wet to subsoil correctly and the subsoiler used was a shallower cultivation tool to eliminate the worst of the ruts). These actions were recorded in the SPR.

Although the field was now level, the areas where the rutting had been particularly severe were still compacted at depth. Therefore it was important to get some structure back in the field. To do this the field had to be dried out and so a crop of spring barley was sown. The spring barley did yield reasonably well but the compaction was still present in the subsoil. In the SPR the decision was taken to subsoil where the compaction still existed and was recorded on the combinable crops page. When undertaking subsoiling there is a need to target the appropriate depth and you should check that the compaction has been removed after the operation.

As planned, in the summer of 2013 subsoiling took place and indeed by the autumn three quarters of the field had regained its soil structure but in the area of the worst rutting the field was still wet and not allowing water to drain freely. This has been recorded in the SPR and the next step will be to mole drain the area in the summer of 2014. It is hoped that mole draining will cut through the deep compaction caused by the rutting, however a further investigation of the soil structure in these areas prior to undertaking the operation is recommended. If this fails and the damage persists then this will be recorded in the SPR and a new field drainage scheme will be considered for the worst affected area.

Once a field is damaged then the repair of the soil is a long term and expensive process. The SPR acts as a guide and aide memoir to ensure that the correct sequence of cultivations and general field operations are carried out on the affected areas of field.

The Farming Advice Service offers guidance on a range of issues including Cross Compliance, nutrient management, climate change and competitiveness. We provide advice through group meetings, events and a technical helpline. If you have any further queries relating to this article or any other FAS subject areas, please contact the helpline on **0845 345 1302**. For general enquiries or to register for the FAS newsletter or free text message reminder service, please email advice@farmingadviceservice.org.uk

Website: http://www.defra.gov.uk/farming-advice/

In target catchments, Catchment Sensitive Farming (CSF) can provide detailed one to one support for those farmers who would welcome a second opinion on how to improve soil structure and soil husbandry practices.

Please use the following link to view a CSF video regarding soil compaction (video 13):

http://www.naturalengland.org.uk/ourwork/farming/csf/videos.aspx