

## Healthy Soils Workshop

AHDB Beef & Lamb recently held a week-long series of workshops that focused on soil health. Dr Elizabeth Stockdale, Senior Soil Scientist at Newcastle University, advised audiences on how to assess and manage soils effectively. These workshops followed on from the release of the Healthy Grassland Soils resources last year, which were produced by AHDB in conjunction with ADAS, Scotland's Rural College (SRUC) and Newcastle University.

An estimated 150 people attended the five workshops that were held across the country. The groups had plenty of issues and queries in relation to soil health on their individual farms, the majority of which focused on soil compaction and how to deal with compaction effectively. Some of those who opted to bring a soil sample along for individual assessment.



### Assessing soil for compaction

By using a spade (ideally a narrow one) to dig holes, producers can identify where a limiting layer of compacted soil is located. These layers of compaction are largely caused by traffic above ground and this has a significant impact on dry matter production. AHDB Dairy has found machinery can cause a 22% reduction in dry matter yields. It is also interesting to note that dry matter yields can be reduced by as much as 14% where compaction has been caused by animals. By digging a hole and assessing structure, producers can also ensure that remediation work, such as surface aerating or sward lifting, is reaching the target layer of compaction.

### Soil health

Earthworms play an essential role in soil health, but in order to sustain earthworm populations there must be a food source present. This comes from the decaying organic matter on the soil surface and also from fluids released from plant roots. It is estimated that as much as 40% of sugars that come from the plant's photosynthetic process are leached through the roots, providing a vital source of nutrition to earthworms. By digging a hole, it is also possible to carry out an earthworm count. This gives a good indication of soil health, with a figure of 16 in the top 30cm<sup>2</sup> being the target figure. This equates to 400 earthworms per metre squared, which microbiologists at London's Natural History Museum say is the ideal figure. The number of earthworms will vary if the soil is dry.

## Soil composition

Elizabeth explained that soil is comprised of physical, chemical and biological properties, all of which need to be kept in balance and managed effectively in order to optimise dry matter production.

- ⇒ Physical: Ensure soil structure is in a good state. Using a spade and the Healthy Grassland Soils (HGS) pocketbook, it is possible to assess soil structure. Ideally, soil should be at a score 1 or 2 in the HGS soil scoring guide. Where soils are at a score of 3 or above, suitable management practices should be implemented. Again, a spade is crucial to ensuring that any remediation work is at a sufficient depth within the soil profile.
- ⇒ Chemical: A soil test should be considered an investment. It will tell the Phosphorous (P) and Potassium (K) levels in the soil and then adequate levels of fertilisers can be applied appropriately. Soil acidity is measured on the pH scale, with the target for a grassland situation being 6-6.2. Yield losses due to low pH levels can be considerable.
- ⇒ Biological: Earthworms are crucial to ensuring that soil is aerated and organic matter is transported from the surface layer right through the soil profile. Management practices such as soil cultivation work and slurry application can reduce earthworm populations. Compaction also reduces the mobility of earthworms throughout the soil profile – this further reiterates the need to dig holes and assess soil structure.

The Healthy Grassland Soils pocketbook can be found on the [AHDB Beef & Lamb website](#)  
For more information visit the [Healthy Grassland Soils website](#)