

Beef from Grass

Matthew House – the value of a nutrient management plan

A key factor in improving the efficiency of beef production is to increase the quality and utilisation of forage, predominantly grass and clover. In order to do this, industry typically concentrates on reseeding, grass varieties, grazing methods and measuring grass. Soil conditions are often ignored, however they are crucial to how well grass grows. A greater awareness of soil and its physical and chemical status is needed, which is an area of knowledge that most producers are lacking. Grassland producers are generally not focused on soil analysis and the ones that are have very little skill in interpreting the figures.



Matthew House is one of the eight producers taking part in AHDB Beef & Lamb's Beef from Grass project. He has recently taken over the farm and to help address the shortfalls in the nutrient status of the soil a nutrient management plan has been produced.

The nutrient plan focused on supplying the correct levels of nutrients based on data from the fertiliser manual (RB209) and emphasised the importance of manure, not only as a cheaper source of nutrients, but also as a soil conditioner to aid soil organic matter.

To begin with, Matthew carried out a soil test to establish the levels of nutrients available. The results shed light on the variability of the different fields and gave a better understanding of previous cropping impacts. It identified that pH levels were either correct or too high, which was to be expected given limestone brash is the parent material. Phosphate levels were generally low and potash levels acceptable, however he would need to increase this if the ground was to be used for hay or silage offtake.

High pH levels have an impact on the availability of phosphate, which is essential for food production, because excess calcium can reduce the release of phosphate from the soil. It also impacts strongly on the availability of trace elements from the soil which are very important to livestock health.



One of the most important considerations for Matthew was the structure of the soil. Compaction is an increasingly common issue on livestock farms and damaged soils significantly reduce the uptake of essential nutrients. Mass flow and convection is how nitrogen, sulphur and calcium are taken up by the plant. They dissolve into the soil moisture and flow through the soil profile. However, if the soil is compacted, water and therefore the nutrients will run off the surface of the soil.

Source: BRP manual Improving Soils for Better Returns

Phosphate and potash are taken up by the plant in two ways. One method is root interception, when the root grows into the gaps between the soil particles, picking up any free floating phosphate and potash ions. This accounts for about one percent of the crop demand. The majority is taken up by diffusion, which is when phosphate and potash is released into gaps in the soil once the root interception has occurred. If soil compaction is a problem then uptake of these nutrients is challenged. Without phosphate and potash the uptake of nitrogen becomes very inefficient, increasing losses to the environment and reducing grass yield and consequently livestock output per ha.



Source: BRP manual, Managing Nutrients for Better Returns

It is essential that good soil and nutrient planning is put in place to optimise the potential production from grass. Grass is undoubtedly the cheapest feed source available for beef production, but all too often the benefits are not realised because the basic building blocks of growing grass are ignored. Cost of production figures for kg of dry matter grass are often quoted, but

these are based on estimated yields. If these yields are not achieved then costs per kilogram will rise. Quality of forage is often not accounted for and costs of production rise before utilisation losses are considered.

At Matthew's farm, data is being recorded for animal performance and grass growth. Investment is being made in rotational grazing infrastructure (electric fencing and water supply) and a significant investment is also being made into the health of the soil. Results of these changes will be featured in future Beef from Grass updates in Grazing Club News and through events on Beef from Grass farms.

For more information see the BRP manuals [Improving Soils for Better Returns](#) and [Managing Nutrients for Better Returns](#)

To find out more about upcoming Beef from Grass events take a look at the [AHDB Beef & Lamb website](#)