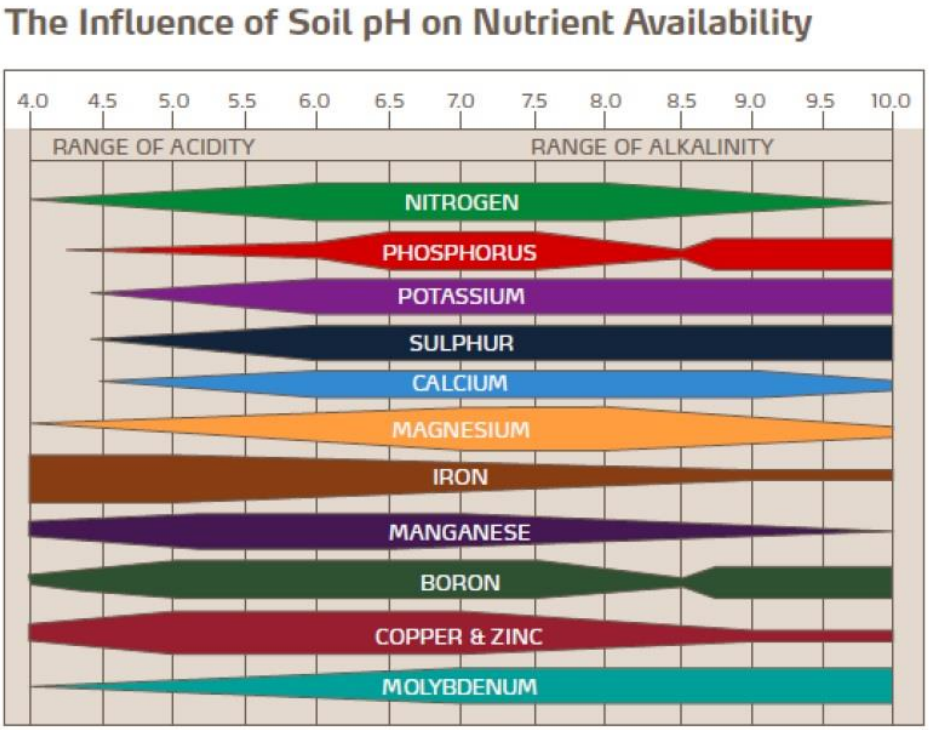
**Lochaber Monitor Farm - Meeting 3 Report Annex**

## Liming

The benefits of liming to raise soil pH are often promoted, but often the reasons behind it are not. One of the main benefits is that the availability of nutrients to the grass increases if soil pH is raised to a value of around 6.0 to 6.2. This is particularly true for nitrogen and phosphate and therefore it has an effect on grass yield. A number of field trials have shown that raising soil pH from 4.5 to 6.0 by liming can increase grass yield by around 50%.

However, it is important not to over-lime and only apply at recommended rate. If the soil pH increases much above 6.5 and certainly above 7.0, then the availability of some important mineral nutrients such as copper and zinc is reduced. Normally this wouldn't affect the grass growth, but they could become deficient for grazing livestock.




*The above table illustrates the effect the soil pH has on the availability of other key soil nutrients.*

**Phosphate and Grass**

Although nitrogen is by far the most important soil nutrient for grass there are a range of other nutrients of which the grass needs adequate amounts. For phosphate (P) and potassium (K) (potash) soil analysis can tell you whether there are adequate amounts present. However, it is notable in many Scottish soils that the application of phosphate fertiliser has little effect on the plant-available quantities in the soil. This is due to the high phosphate sorption in the soil.

SRUC has produced a Technical Note which includes a map of soil areas that are prone to high sorption of phosphate. It also provides a list of the soil types that are prone.

More information on phosphorus sorption is at https://www.sruc.ac.uk/downloads/file/2460/tn668_managing_soil_phosphorus_april_2015. This also provides recommendations on the amounts of fertiliser phosphate required.

You can also find what type of soil you have at http://sifss.hutton.ac.uk/SSKIB_Stats.php

**Compaction**

Soil compaction can cause major problems for surface drainage, grass rooting and air movement to roots. It is inevitable that animal treading and machinery will cause some compaction, but it is also likely that in the west of Scotland, high rainfall in itself causes surface compaction.
There is a range of equipment now available for alleviating surface compaction; spiked aerators, turf lifters, with mixed reviews on their capabilities. One factor of major importance is that soil conditions are correct for their use. If used in wet soil conditions they can make the situation worse.
If the compaction is concentrated at the surface a fairly low tech means of getting through it is to use a spiked chain harrow. This is also useful for taking out dead vegetation and moss.

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