Unlock the potential of your soil

In preparation for the launch of an industry lime standard, the Agriculutural Lime Association (ALA) explains why paying attention to pH and liming is crucial and also why the quality of lime applied is equally important.

It is often the basics of soil health that are forgotten when planning to grow a crop, whether grass or forage. A lot of attention is paid to cultivations, varieties and inputs such as NPK fertilisers and pesticides, yet growers often comment that they cannot afford to lime this year!

Table 1 illustrates the (relative) efficiency of fertiliser at various pH levels. Can we as farmers and growers afford to operate at these levels of inefficiency? Calculations show that even at an only slightly sub-optimal pH of 5.9 in a grass ley the annual losses per hectare can equate to a value of £115/ha. It demonstrates that you cannot afford not to lime if you don't want your money spent on fertilisers to be wasted. If fertiliser nutrients are not used effectively, plant growth will be compromised.

Liming recommendations are generally based on 200mm (8 inches) of soil. Therefore on grassland it may be possible to use less as you are not trying to influence the same depth of soil. However, this should be based on an accurate pH test carried out by an accredited laboratory and subsequent advice from a FACTS-qualified adviser.

The size of the particles in an application of lime is vitally important as it is the reactivity of the smaller particles that rapidly alters the pH level in the soil and improves fertiliser use efficiency. Particles should be below 0.5 mm to be effective in the soil; particles greater than 1.3mm are of no liming value.

When buying lime it is crucial to know that the product is compliant with legal declarations and specification because of the significant effect that particle size has on the reaction in the soil. Don't be misled; the percentage of material passing 0.150mm and neutralising value (NV) in combination determines the speed of reaction in the soil. Table 2 (right) lists the regulatory specification for Agricultural Lime; it is a legal requirement for ALL delivery documentation to include the product description, the neutralising value (NV) and the percentage passing 0.150mm should also be quoted. Note that the term 'Aglime' can only legally be used when the material meets these specifications.

Liming will ensure nutrients can be used more effectively, helping to ensure a quality sward.

The Fertiliser Regulations 1991: Agricultural Lime Specification

Unfortunately a lot of lime is sold as agricultural lime with no specification sheet provided. Agricultural economics have a habit of overriding agronomy, therefore screened lime with a lower degree of processing and therefore costs supplies the majority of the UK market. BUT be aware that any product not meeting these standards cannot be sold as agricultural lime.

The best advice is DO NOT buy lime based solely on price as quality will be compromised. Ask for a specification from a known reputable supplier and if an up to date one cannot be supplied do not buy it. Ask for the weight ticket from the quarry to check its authenticity when delivered.

Quality lime should be bought with the first question being about its granulometry (fineness of grind) – see Table 2 – followed by reactivity, NV and then price. Value the effect that lime can have on a farm's productivity and profitability and ensure it is built into the annual fertiliser budget. As a cost, it is cost-effective; there are few simple agricultural operations that can have such a profound effect as ensuring that the optimum lime status is maintained.

The ALA is currently working on a standard that will require all members to annually test the agricultural lime that they supply from each quarry. This will ensure that specifications are declared and enable farmers and growers to buy quality product with confidence.

The ALA seeks to provide a better understanding of the many uses of agricultural lime in the UK. Its website gives a great deal of technical information on the use of lime and its benefits, including lime applications, soil acidification, lime applications, pH value and lime requirements, farming with lime and cropping requirements.

For further information see: http://www.aglime.org.uk/.

Table 1. Relative efficiency of fertiliser at various pH levels

Soil acidity	*Nitrogen*	*Phosphate*	*Potash*	*Fertiliser wasted*
Extremely acid – pH4.5	30%	23%	33%	71.34%
Very strong acid – pH5.0	53%	34%	52%	53.67%
Strongly acidic – pH 5.5	77%	48%	77%	32.69%
Medium acid – pH6.0	89%	52%	100%	19.67%
Neutral – pH7.0	100%	100%	100%	0%

Source: Dr C Synder, Soil pH Management

Table 2. Minimum % of sample that will pass through a sieve size

Sieve Size	*Ground lime*	*Screened lime*	*Course screened*
5mm	100	100	100
3.35mm	95	95	90
150 micron	40	20	15