

Liming & Biodiversity:

Is liming always a good idea?

Practical Guide

Liming has many beneficial effects for agricultural production, however if we consider the biodiversity value not all habitats will benefit. Abandoned land often has a diverse range of habitats, which may include improved grassland, species rich grasslands, wetlands, unimproved grassland, moorlands and heathlands. This guide will provide information about how liming affects biodiversity of both above ground (species and habitats) and below ground (soil microbes).

Positive effects of liming on biodiversity:

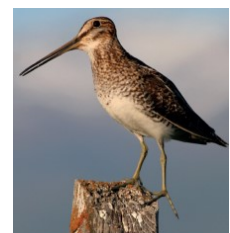
- Increased nutrient availability and uptake
- Enhanced soil biodiversity and activity leading to increased above ground biodiversity on certain habitats.
- Liming crops and grassland is beneficial to yield and quality and for grazing stock.
- Liming impacts on biodiversity can vary significantly.

Detrimental effects of liming on biodiversity:

- Changing soil pH can affect plant community composition and with some species preferring a specific pH range, there may be both positive and negative impacts on diversity.
- Liming can affect certain target or key species if they flourish out with the new pH range you have created.

Beneficial effects of lime on habitats and species

- Many liming impacts will be neutral in biodiversity terms, such as the change in dominance from one common plant species to another.
- Liming a species poor sward, particularly semi-improved grassland is likely to lead to an increase in species richness as well as an increase in agricultural grazing value.
- Some birds species can potentially benefit, but the impacts of liming on biodiversity separate from other aspects of agricultural intensification is still lacking in evidence for many groups of organisms.
- Farmland birds particularly waders such as curlew, snipe, lapwing and golden plover can benefit from lime spread on improved and semi improved habitats due to increased biological soil activity, particularly increased numbers of earthworms. This may be a long term effect.
- Different moisture content, compaction and drainage systems have an effect on species composition in the soil and species of waders.
- Curlew and Snip prefer damp area with standing waters
- On drier areas on slopes and freer drying soils lapwing or golden plover can be found.



Beware: Liming is not always beneficial

- Biodiversity responses to liming are likely to take several years to fully develop.
- Liming species rich grassland is likely to have an effect on the species composition causing a reduction of species. This could be detrimental to the biodiversity value overall.
- Liming acidic habitats such as rough grasslands and moorlands will not be beneficial to the natural community of acid loving plants.

There may be positive impacts on some species groups but the situation is often complex and depends on soil type.



What should you do?

- Survey the habitats on your fields and decide which fields would benefit from liming and which fields would be better left in their natural pH conditions to promote biodiversity.
- Be aware that some future farming payments may rely on the biodiversity value of your farm. Ensure you are protecting your biodiversity value where you can.
- Test your soils in the fields that you plan on improving and lime to recommendations.
- If you are planning to undertake improvements on unimproved land, remember you need to apply for approval from SGRPID as part of the Environmental Impact Assessment (Agriculture) (Scotland) Regulations 2006.
- Use land management techniques such as livestock grazing / water management to create good conditions for the key species that have been identified in your high biodiversity areas.

In summary, liming in many cases will have a positive biodiversity effect. But be aware of potential biodiversity loss from land improvement actions. It is important to target lime application to the fields with the biggest agricultural gain and lowest biodiversity loss.

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