

Which Lime to Use?

- Calcium ground limestone is most common
 - Fast acting and rapid pH adjustment
- Magnesium (Dolomitic) ground limestone is available
 - Slower to react but higher liming value
 - Good source of magnesium for soils with low levels
- Granulated Limes
 - Finely ground lime (less than 0.1mm particle size) and very reactive
 - Apply as maintenance product where soil pH is in the optimum range
 - Consider costs over a 3 to 5 year period

Lime & High Molybdenum (Mo) Soils

- High levels of Mo in grass can reduce copper uptake in grazing animals
- On soils with high Mo status there is higher risk of copper deficiency occurring
- Increased soil pH (especially > 6.2) increases Mo availability
- Minimise soil Mo by maintaining soil pH at a slightly lower range 6.0 - 6.2

Poaching & Soil Types

- As the soil pH increases following lime application to permanent pasture the rate of breakdown of the grass sod may also increase due to elevated biological activity
- On wetter and more poorly drained soils this may increase the risk of poaching occurring in the short term
- To reduce the risk of “softening the sod” lime should be applied at a reduced rate using a little and often approach

Lime & Slurry /Urea

The type of N supplied in slurry and from urea is ammonical N and is prone to loss if applied to freshly limed soils. To avoid N loss the following is recommended

- Wait at least 3 months after liming before applying Urea or slurry application
- Wait 10 days after slurry or urea application before applying lime

Farmers who spread lime report positive results on their farms



John Leahy, Athea, Co. Limerick

- Farms heavy clay mineral & peat soils
- Increased mineral soil pH from 5.5 to 6.3 over 3 years across the whole farm
- Applied 100t lime per year on 40ha costing €2,600/yr
- Increased average grass production by 1.5t DM/ha/yr (valued at €272/ha)
- Average lime applied per year 7.5t/ha (Costing €65/ha/year)
- This represents a return on investment of €4 in extra grass for every €1 in lime

“I’ve taken an aggressive approach to liming over the last 3 years, making it a priority area of spending”

“Grass growth has turned around on the farm, grass has a healthier appearance and responds more quickly to N fertiliser. This year I’ve noticed improved drainage on the heavier soils on the farm”

John Leahy, Athae, Co Limerick

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Advice on Liming

Add life to your land and profit to your business



The Benefits of Liming

- Increase grass production annually
- Release up to 80kg N/ha/year
- Unlock soil phosphorus (P) and potassium (K)
- Increase the response to freshly applied N, P & K

Lime is a soil conditioner and controls soil acidity by neutralising the acids generated from N fertiliser and slurry applications and following high rainfall.

Soil pH has a large influence on soil nutrient availability. Aim to maintain mineral soils in the pH range 6.3 - 7.0 and peat soil in the pH range 5.5 - 5.8 to maximise nutrient supply.

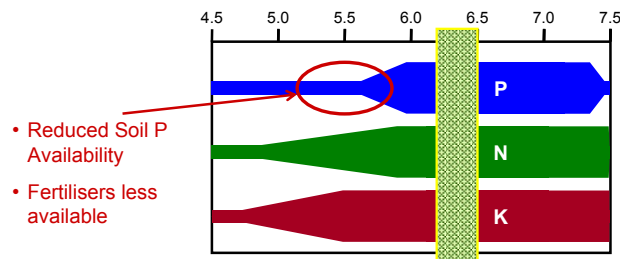


Figure 1: The Impact of soil pH on nutrient availability on a mineral soil

Soils below the target pH will have reduced nutrient availability of N, P & K in the soil and poorer response to applied nutrients.

Maintenance Lime Requirements

Lime Removals per year	Kg/ha
Drainage (leaching)	250-625
10,000 litres Milk or 1 Finished Beef Animal	30
150kg Nitrogen (Bag)	300
Total Lime Required	580 to 955kg/ha/year

- High annual rainfall leads to a large removal of lime each year
- Typical maintenance lime requirement of 2.5 to 5.0 t/ha once every 5 years depending on regional location and rainfall (i.e. typically higher rates may be required in the West)
- Apply maintenance lime to 20% of your farm on an annual basis

Importance of soil pH for Grass Production

- Correcting soil pH from 5.2 to 6.3 increased grass production by at least 1.0 t/ha (See figure 2)
- The application of 5t/ha ground limestone produced similar grass yields compared to the application of 40 kg/ha P fertiliser alone on soils with low pH
- The addition of lime + P fertiliser in combination produced the largest grass yield response (1.5 t/ha more grass than the control in the season of application)
- Lime increases the availability of both stored soil P and freshly applied fertiliser P

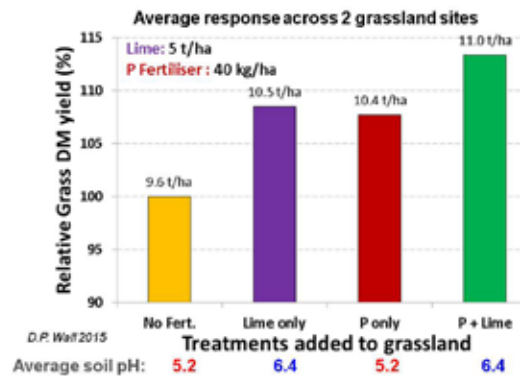


Figure 2: Relative grass DM yield response in grassland treated with Lime (5 t/ha of lime), P fertiliser (40 kg/ha of P), and P + Lime over a full growing season (No Fert. = No P, No Lime)

Return On Investment (ROI) From Ground Limestone Usage

- Research shows average grass production response of at least 1.0 t/ha from lime alone
- This is worth €181/tonne of grass dry matter (DM)
- Return on investment - maintenance lime application costing €25/ha/yr enabling the production of at least €181/ha/yr of extra grass
- At farm level every €100 investment in lime equates to approximately €700 in extra grass production annually

Spreading Lime

How much lime?

- Test soils on a regular basis (every 3 to 5 years) to determine lime requirements
- Only apply lime based on a recent soil test report
- Don't exceed 7.5t/ha in a single application
- Application rates >7.5t/ha, apply 50% now & remainder in 2 years

When?

- Prepare a farm liming plan
- Target fields with largest requirements first
- Lime can be spread all year round
- Ideally apply to bare soils (after grass silage harvest)
- Apply at reseeding time & incorporate into seedbed

How Often?

- Apply lime as per the soil test report
- On very acidic soils with high lime requirement apply 50% now and remainder in 2 years' time
- Apply lime to 20% of the farm annually