

Soil fertility- what you need to know

Fertile soil is the foundation of a profitable dairy farm. High fertility soils (Index 3 for P & K, pH 6.3) can grow 14t grass DM per ha while low fertility soils will grow less than half that. As a productive dairy farmer you should be looking to maximise grass production on your farm; this can only be done by knowing the fertility status of your soils.

Do you know the fertility status of your farm?

Soil analysis is the starting point to building a plan for optimum grass production. It is the **first step** on the road to growing more grass:

- It provides vital information about your soils
- It is a small expense – approx. €1.25/ha/year, valid for 5 years
- A standard soil test gives pH, lime requirement, phosphorus (P) & Potassium (K) status. This helps you to target fertilizer use for better response

How does soil pH & lime affect your farm?

- Low pH reduces fertilizer efficiency (see below) – Lime improves the availability of Nitrogen, Phosphorus, Potassium, Sulphur, Calcium & Magnesium
- Ground limestone can be spread at any time – it should be incorporated into the seedbed when reseeding
- Apply lime as per soil test report – Avoid over-liming as this can result in trace element imbalances. Lime at least every 5 years

Effectiveness of fertilizer at different soil pH levels →

	N	P	K
pH 5.0 (very strong acidic)	53%	34%	52%
pH 6.0 (medium acidic)	89%	52%	100%

What index you should target for P & K

- Index 3 is the optimum level for crop growth
- Index 4 soils (high fertility) are a resource – they will save you money on fertilizer
- Index 1 & 2 soils (low fertility) need additional nutrients
- **Over 60% of soils tested in the region during 2012 were low in P or K**

Are you getting value from your slurry and manures?

- Slurry provides 3.6kg P/1000 gallons while FYM (farmyard manure) provides 1.2kg P/ton
- Slurry provides 20kg K per 1000 gallons while FYM provides 6kgK/ton
- Slurry provides 3.5kg N/1000 gallons while FYM provides 1.35kg N/ton
- Target your application of slurry & FYM at your low index fields

How can you make the best use of nutrients on your farm?

- Develop a fertilizer plan for your farm
- Chose a fertilizer that has the correct NPK balance based on your soil analysis
- Get the best value from fertilizers and organic manures with timely spreading
- Good nutrient balance aids establishment of newly reseeded swards (see Joint Programme Bulletin No. 2)