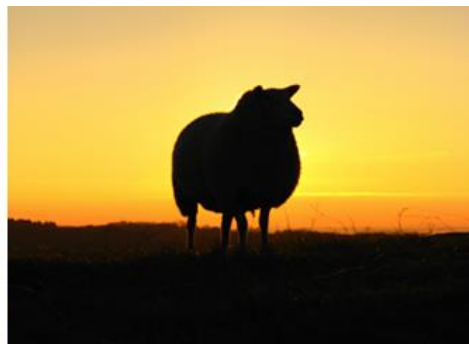


Better soils for better grass



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Welcome

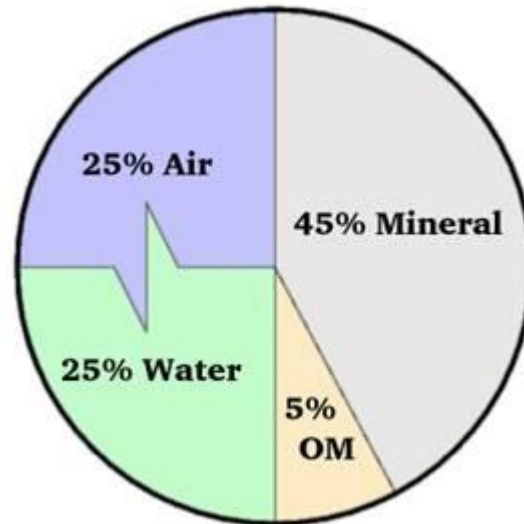
Women in Agriculture. 27th June 2018

Better soils for better grassland.



Trevor Polley

Soil

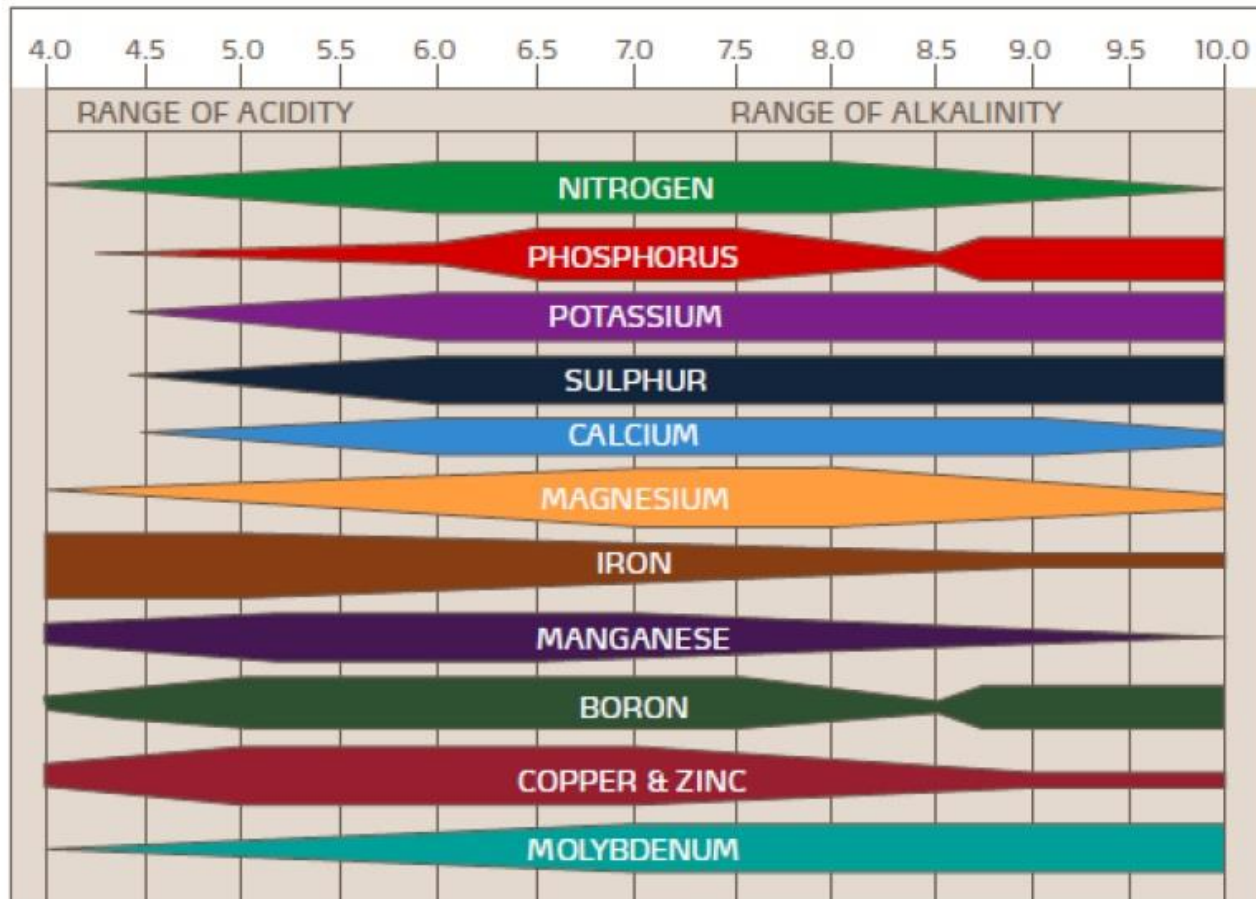


Nutrients

- Nitrogen N
- Phosphate P
- Potash K
- Magnesium Mg
- Calcium Ca
- Sodium Na
- Sulphur S

pH

The Influence of Soil pH on Nutrient Availability



Nutrient removal

- 1 tonne fresh silage removes 1.7 kg P and 6 kg K

Table F. Established grass default yields (fresh weight) and standard PK content (fresh weight)

TN652

Utilisation	Defoliation position	Yield (t/ha)	P content (kg P ₂ O ₅ /t)	P offtake (kg P ₂ O ₅ /ha)	K content (kg K ₂ O/t)	K offtake (kg K ₂ O/ha)
Silage	1 st occurrence	23	1.7	39	6.0	138
Silage	2 nd occurrence	12	1.7	20	6.0	72
Silage	3 rd occurrence	9	1.7	15	6.0	54
Hay	Any defoliation	7	5.9	41	18.0	126
Grazing	Any defoliation	10	1.4	3*	4.8	2*

* Grazing this calculation assumes approximately 80% of the P₂O₅ and 95% of the K₂O is recycled infield by the animal through its dung and urine.

Soil analysis

- Determine soil status
- Fertiliser: Adjust for base level (M-) and crop removal

Farm Sampled:		Sample ID :	Back Field Upper
Your reference:	S18329	Lab sample no:	18002441
Last Crop:	Grass	Case no:	ASD-2018-1347
Next Crop:	Grass - grazing	Date received:	26/02/2018
Soil Type:	Mineral	Date reported:	08/03/2018

Determination	Result	Units	Status
pH	4.9		
Lime req (Arable)	12.4	t/ha	
Lime req (Grass)	9.1	t/ha	
Extractable Phosphorus	10.7	mg/l	M(+)
Extractable Potassium	81.70	mg/l	M(-)
Extractable Magnesium	60.60	mg/l	Mod
Extractable Calcium	420	mg/l	
Extractable Sodium	22.60	mg/l	

Manures

TN650

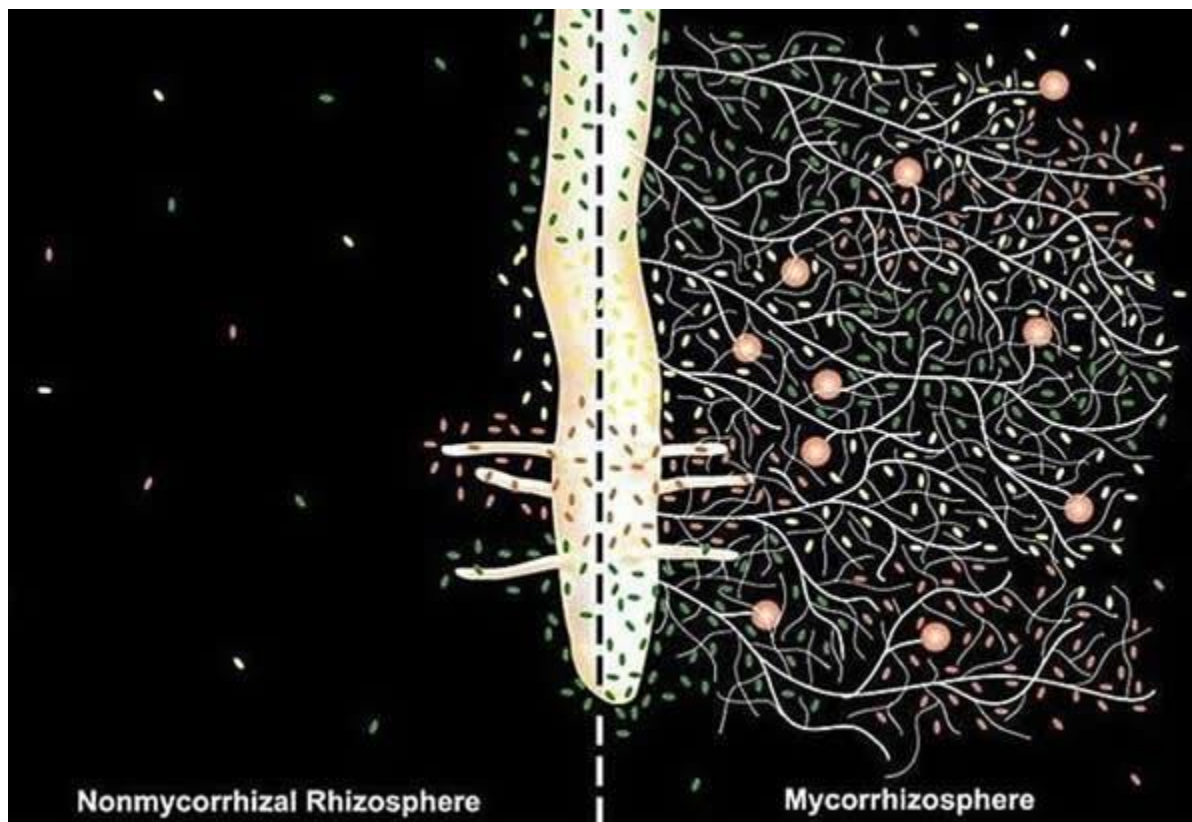
Table C. Typical dry matter (DM) and nutrient contents of livestock manures

Manure type	DM (%)	kg/t (solid manures) or kg/m ³ (liquids/slurries)					
		Total N	Readily available N	Total P ₂ O ₅	Total K ₂ O	Total SO ₃	Total MgO
Cattle FYM – fresh	25	6.0	1.2	3.2	8.0	2.4	1.8
Cattle FYM – old	25	6.0	0.6	3.2	8.0	2.4	1.8
Pig FYM – fresh	25	7.0	1.8	6.0	8.0	3.4	1.8
Pig FYM – old	25	7.0	1.0	6.0	8.0	3.4	1.8
Sheep FYM – fresh	25	7.0	1.4	3.2	8.0	3.0	1.6
Sheep FYM – old	25	7.0	0.7	3.2	8.0	3.0	1.6
Layer manure	35	19	9.5	14	9.5	4.0	2.6
Broiler / Turkey litter	60	30	10.5	25	18	8.0	4.4
Cattle slurry	6	2.6	1.2	1.2	3.2	0.7	0.6
Biosolids, digested cake	25	11	1.6	18	0.6	6.0	1.6
Biosolids, composted	60	11	0.6	6.0	3.0	2.6	2.0
Green compost	60	7.5	0.1	3.0	5.5	2.6	3.4
Distillery pot ale	5	2.5	0.1	1.8	1.1	0.2	0.3
Water treatment cake	25	2.4	0.1	3.4	0.4	5.5	0.8

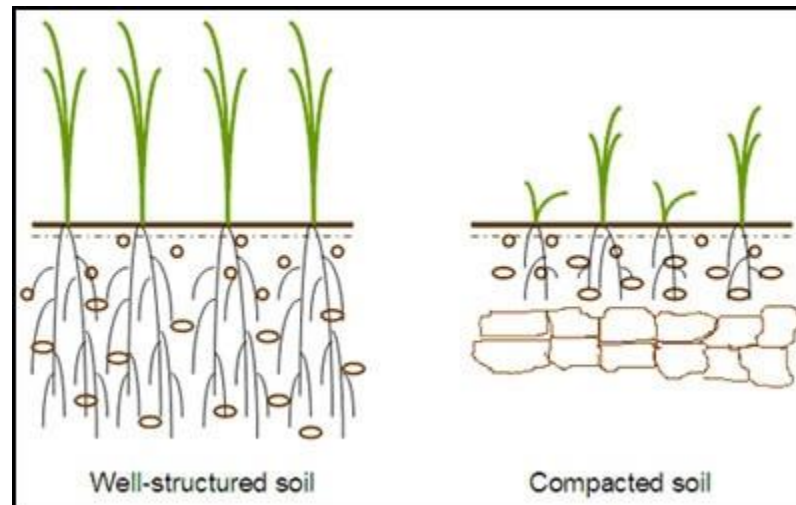
Roots



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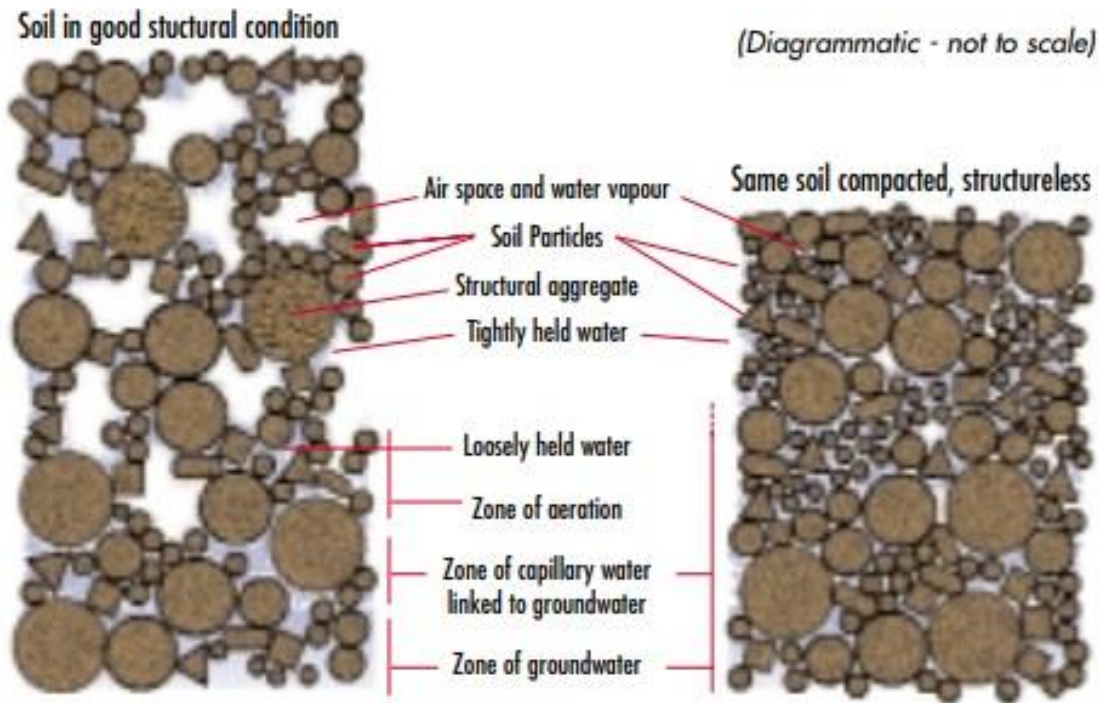
Compaction



Compaction



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The European Agricultural Fund
for Rural Development
Europe investing in rural areas



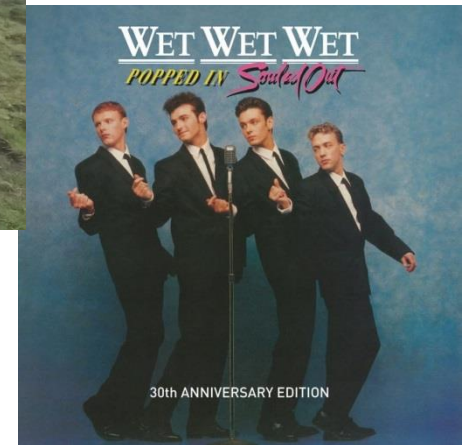
Scottish Government
Riaghaltas na h-Alba
gov.scot

Compaction

- Surface compaction can be alleviated by spiking or chain harrow
- Machinery compaction alleviated by sward lifter
- Plough pan by subsoiler, mole ploughing



Waterlogging



Common or soft rush

Juncus effusus.

- Cool, wet climate
- Rhizome root system
- ~8,500 seeds/plant
- Seeds viable < 60 yrs.
- *effusus* means spreading
- Tolerate ph range 3 - 7



Soil structure



Ref: Environment Agency thinksoils

Grass

- Options;
- Manage existing sward. Pro's & cons?
- Reseed;
- Plough v. direct drill/overseeding

Thank you

