

Stirling Soil Nutrient Network



Aucheneck Estate
Thursday 10th October 2019



Agenda

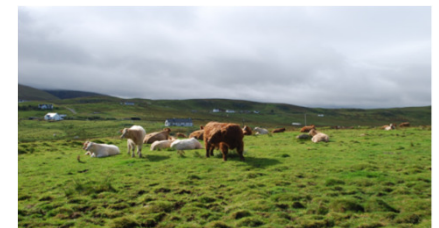


- Coffee and Registration 10:15-10:35 KD
- The Last 12 months 10:35-11:00 JM & CG
- Nitrogen Management 11:00-12:00 DD
- Offtakes & Micro Nutrients 12:00-12:35 RM
- Lunch 12:35-13:05 KD
- Cultivation & Carbon 13:05-14:00 ZR
- Slurry & FYM, Summary 14:00 -14:30 JM

STIRLING SOIL NUTRIENT NETWORK FARM



- Funded by Scottish Government under the Farm Advisory Service and delivered by SAC Consulting
- A network of 12 farms across Scotland taking a before and after look at how to protect and improve soils:
- Campbeltown, Ayr, Stonehaven, Kirkwall, Stranrar, Elgin, Benbecula, St Boswells, Angus, Turriff, Dumfries.
- The aim is to improve farm profitability through improved soil and nutrient use, lower carbon footprints and reduce diffuse pollution risk.
- Series of 3 meetings—September and February 2018 & October 2019



The Last 12 Months



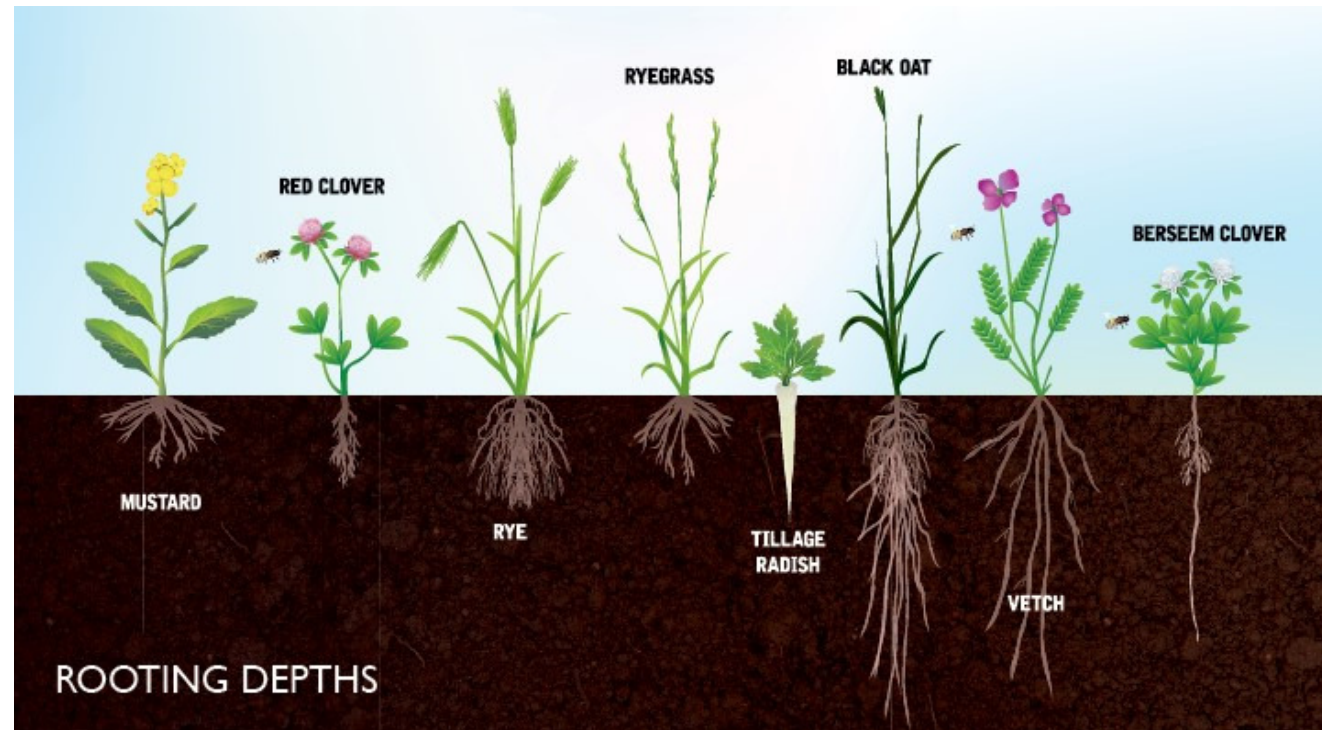
- A lot has changed at Aucheneck!

< 2018	2019 onwards
25 year grass lays	Moving to Rotational Farming
Rough liming idea	Lime plan, soil testing more regularly
No lime spreader	Lime spreader & lime!
No Aerator	Aerator
Mostly topping	Weed wiping program
No cultivation	Barley cover crop incorporated
High fertiliser bill	Reduced fertiliser for bought in P & K . New Spreader
Same fertiliser plan for years	Saved £2000 in changing fertiliser with better use of slurry and FYM



What have we covered!

- Cover Crops
- Compaction
- Soil Health
- Liming
- Reseeding
- Nutrient Planning



Prevention is Better than Cure



Reduce weight

Minimise loads, remove weights
Light machines, more axles

Reduce ground pressure

Wider tyres, low inflation pressure
Tandom or Dual wheels, Tracked vehicles
Specialised low ground pressure machines

- **Sacrifice yield for timeliness**
- **Choose crops to suit your soil type**
- **Avoid uphill operations**
- **Use Tracks/Endriggs/Tramlines**
- **Gates at bottom of field ?**
-

Know Your Soil - to improve soil health



FARM
ADVISORY
SERVICE

Biological

- Feed the soil regularly through plants and OM inputs
- Move soil only when you have to
- Diversify plants in space and time

Chemical

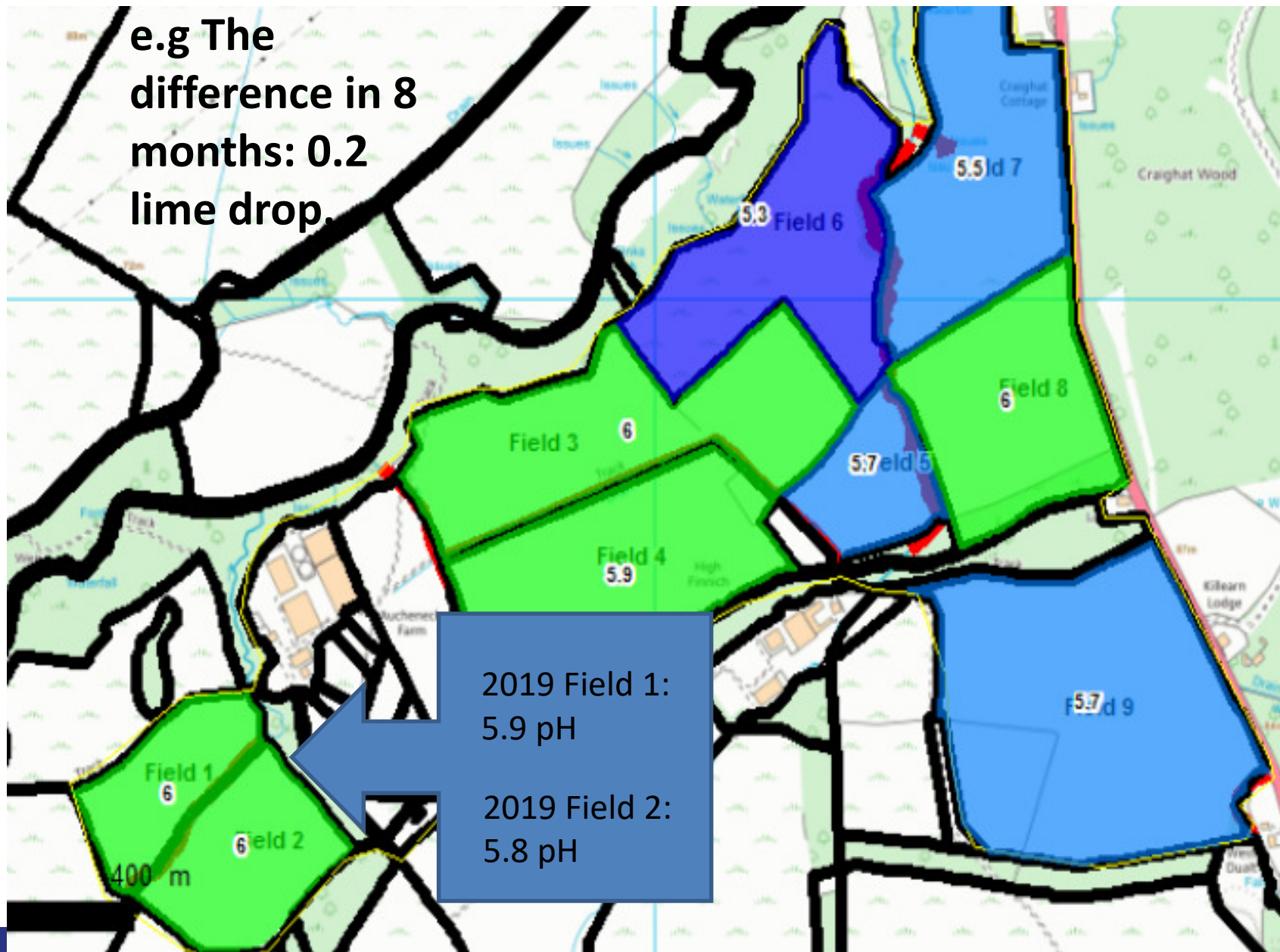
- Maintain optimum pH
- Provide plant nutrients – right amounts in the right place at the right time
- Know your textures and minerals – buffering capacity, free supply!

Physical

Textures - limits to workability, trafficability

- Optimise water balance through drainage if necessary
- Improve soil structure – effective continuous pore space

e.g The difference in 8 months: 0.2 lime drop.



Why Do We Need to Lime?



% Nutrient Availability at different pH

	<u>N</u>	<u>P</u>	<u>K</u>
pH 5 (very strong acidic)	53%	34%	52%
pH 5.5 (strong acidic)	77%	48%	77%
pH 6.0 (medium acidic)	89%	52%	100%

Reseeding advice



Lorna Galloway

- “Know roughly the percentage of the good grass and weed species in the sward and whether poor performing grass varieties are dominating (<20% consider spray off).
- How to kill docks but keep clover? ‘In a new lay use triad and spruce, in a established pasture get in early with pinnacle product or use fluroxypyr products.

Slurry & FYM Costs vs Savings



FARM
ADVISORY
SERVICE

Item Cost	Potential Savings in NPK fertiliser for 63ha @ Aucheneck
1 X 17.65 Slurry mineral	£2000
2 X 17.65 FYM mineral	

Why Take a Slurry Sample?



SOIL NUTRIENT NETWORK FARM SLURRY ANALYSIS RESULTS



	Dry Matter (%)	Total N (kg/m ³)	Total P ₂ O ₅ (kg/m ³)	Total K ₂ O (kg/m ³)
Aucheneck	5.39	1.79	1.16	2.5
Shandon	2.79	*1.0	0.5	3.5
Average SNN	6.09	2.62	1.5	3.61

TYPICAL SLURRY ANALYSIS RESULTS TN650

Manure type	DM (%)	kg/t (solid manures) or kg/m ³ (liquor)			
		Total N	Readily available N	Total P ₂ O ₅	Total K ₂ O
Cattle slurry	6	2.6	1.2	1.2	3.2

Know the Value of your Slurry/m3



		Total Nutrients	Available Nutrients
Value of Slurry (3.9% DM)	0.23% N	2.3kg	0.8kg
	0.09% P	0.9kg	0.45kg
	0.22% K	2.2kg	2kg
	Value in 2000 gallon tanker	N	£19.87
	P	£5.99	£3.00
	K	£11.29	£10.26
		£37.15	£20.17
	Value of 1.1million gallons		£20,227

Make sure you balance the Nutrients supply



Thank You For Your Support

