Soil & Nutrient Network

FARM ADVISORY SERVICE

Moray 1st Meeting
Balnellan, 23rd July 2018

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Soil & Nutrient Network
What is it about?

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- Soil Management
- Targeted Nutrient Use
- Improving Efficiency
- Minimising Losses to the Environment
- Improving Soil Structure
- Improving Soil Biodiversity
- Reducing the Risk of Diffuse Pollution
- Making the Best Use of Organic Manures

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The Farm

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First Meeting

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- ❑Soil Analysis
- ❑Compaction
- ❑Soil Structure & Texture

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Programme:	First Meeting Agenda	
10.00 – 10.20	Welcome & Introduction	James Milne & Aileen Buchanan
10.20 – 10.50	Soil Analysis and how to interpret the results	Aileen Buchanan
10.50 – 12.00	Compaction, Soil Structure and texture In field	Gavin Elrick
12.00 – 12.15	Tea/Coffee and networking	
12.15 – 12.45	Equipment to improve soil structure	Gavin Elrick
12.45 – 1.00	Discussion and what to cover at future meetings	Aileen Buchanan
1.00 – 2.00	Feedback forms, lunch and networking	

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Soil Analysis

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Why soil sample?

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- Provides information about the pH and nutrients in the soil
- Highlights areas requiring improvement
- Allows targeting of inputs to avoid over and under application, optimum yields and profitability

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When to sample?

- Any time of year but September to February best, say every 4 -5 years
- **Not** within 2 years of lime applications
- **Not** within 12 weeks of fertiliser or organic manure applications

Where to sample?

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- Large fields should ideally be sub-divided in 4ha (10acre) units
- Separate samples for distinct areas
- Avoid sampling “hot spot areas”

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How?

- Traditional
- GPS

What for?

- Ru gives pH, P, K, Mg, Ca & Na
- Other elements can be added e.g. Co, Cu, B,S and Mn
- Also organic matter (LOI)

- It is important to know which method of analysis has been used

- Different methods will extract different amounts of the nutrients

- The modified Morgan's method is recommended for soils in Scotland

Results

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Determination	Result	Units	Status
pH	6.1		
Lime req (Arable)	2.0	t/ha	
Lime req (Grass)	0.0	t/ha	
Extractable Phosphorus	5.93	mg/l	M(-)
Extractable Potassium	280.0	mg/l	High
Extractable Magnesium	76.50	mg/l	Mod
Extractable Calcium	1500	mg/l	
Extractable Sodium	25.20	mg/l	
Extractable Sulphur	7.0	mg/l	Mod
Extractable Copper	3.21	mg/l	Mod
Organic Matter (LOI)	7.42	%	

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Summary

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Farm Sampled: Balnellan

Batch Number: ASD-2018-3937

Report Date: 09/07/2018

SAC	SAC Status	Extractable Phosphorus	Extractable Potassium	Extractable Magnesium
Scales of Interpretation, results in mg/l	VL	0 – 1.7	0 – 39	0 – 19
	L	1.8 – 4.4	40 – 75	20 - 60
	M-	4.5 – 9.4	76- 140	61 – 200
	M+	9.50 - 13.4	141 - 200	61 – 200
	H	13.5 – 30.0	201 – 400	201 – 1000
	VH	> 30.0	> 400	> 1000

			Lime Required		Extractables		
			Arable	Grass	P	K	Mg
ASD Ref	Field Name/Ref	pH	t/ha		mg/l	mg/l	mg/l
18007534	14	6.1	2.0	0.0	5.93 (M-)	280.0 (H)	76.50 (M)
18007535	17	6.2	0.0	0.0	7.06 (M-)	163.0 (M+)	96.00 (M)
18007536	18	6.1	2.1	0.0	6.60 (M-)	261.0 (H)	196.0 (M)
18007537	20	6.0	2.7	0.0	9.35 (M-)	169.0 (M+)	131.0 (M)

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- When levels in the soils are known applications can then be worked out using the SRUC Fertiliser Technical Notes

- In Scotland the optimum soil nutrient status for P, K and Mg is moderate for most crops

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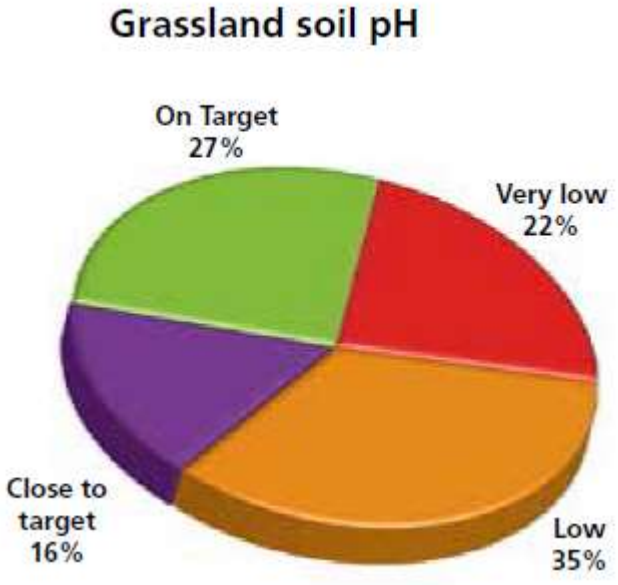

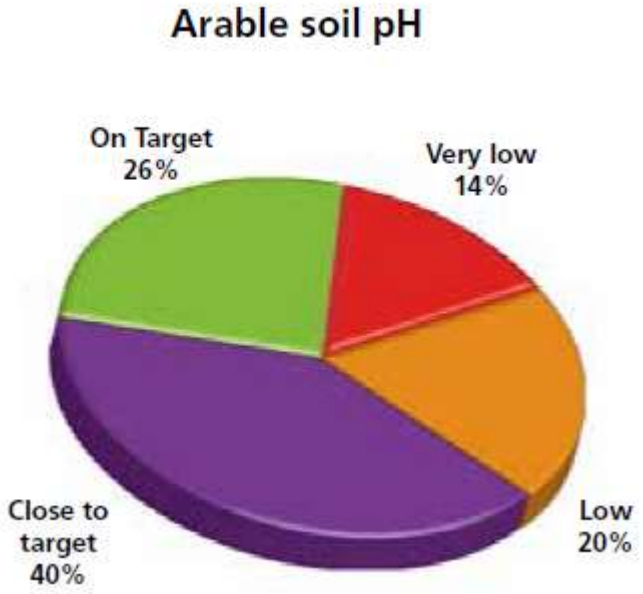

- The majority of soils are being managed below optimal pH status

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pH June 2018

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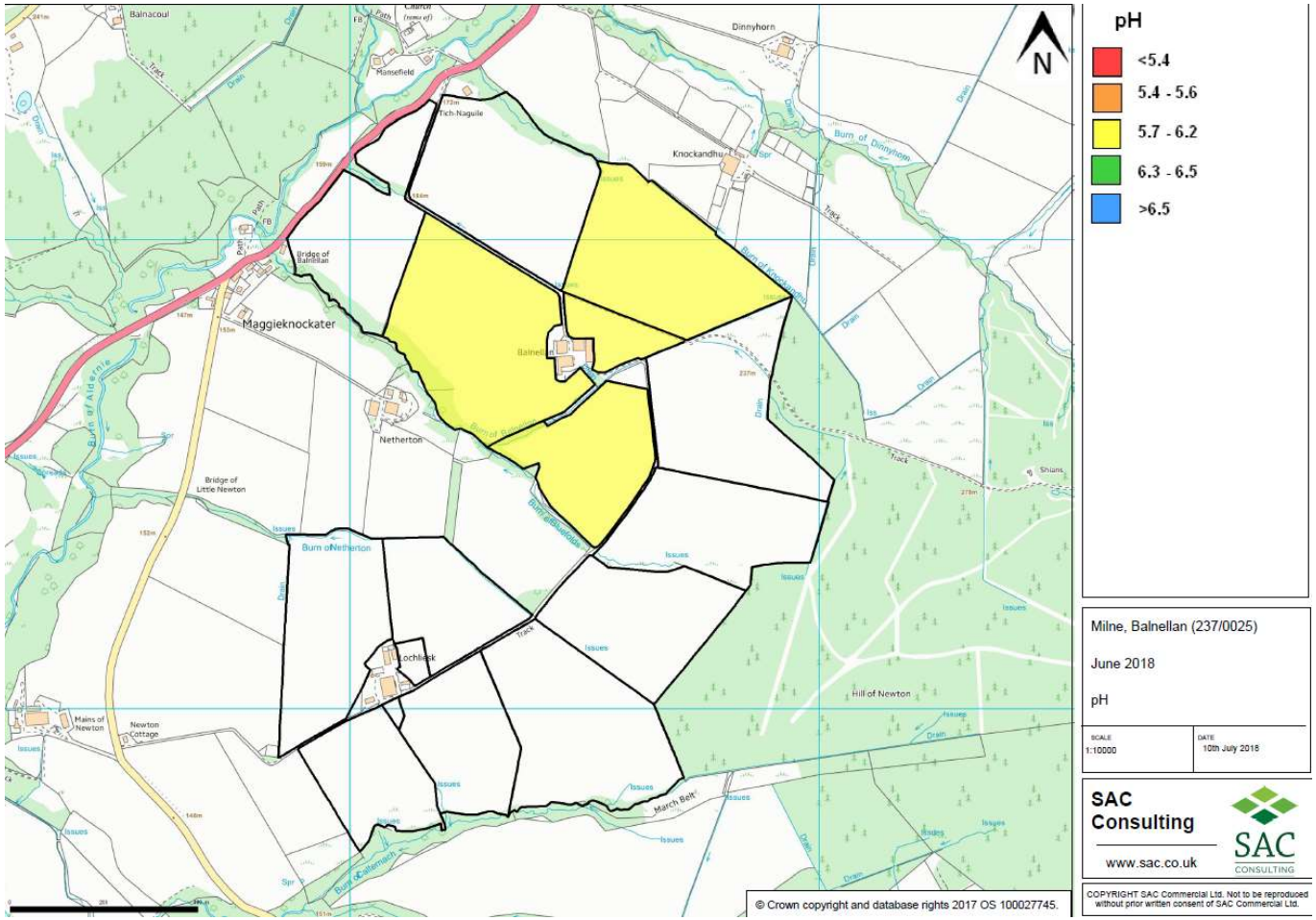

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pH – July 2017

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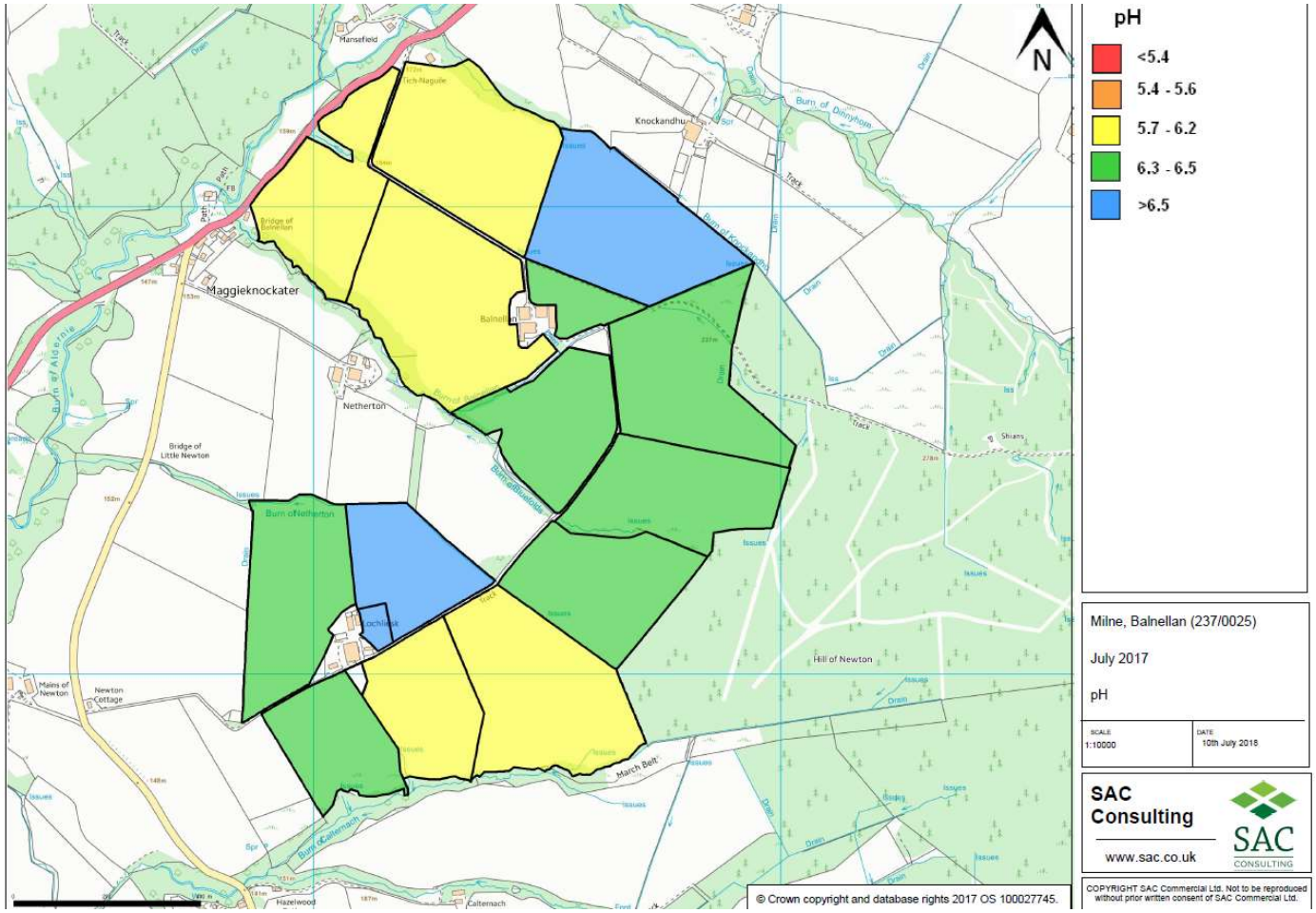

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pH

- Aim for optimum

mineral soil - cereals 6.0 to 6.2

grass 6.0

organic soils – cereals 5.7 to 5.9

grass 5.3 to 5.5

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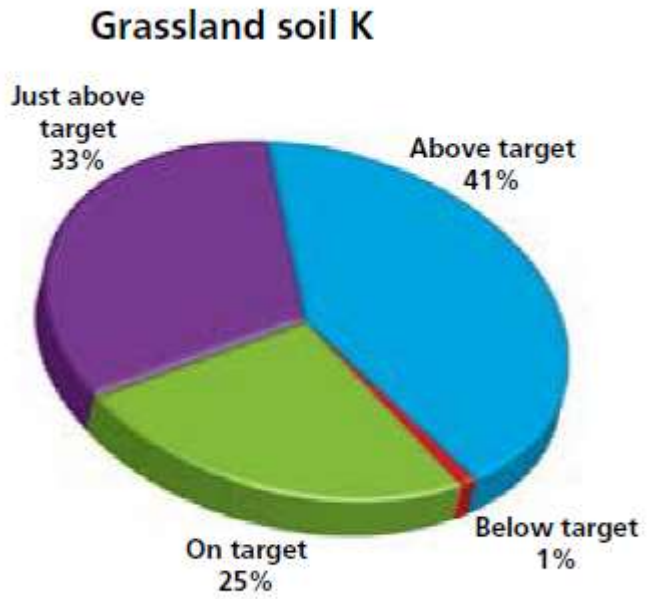

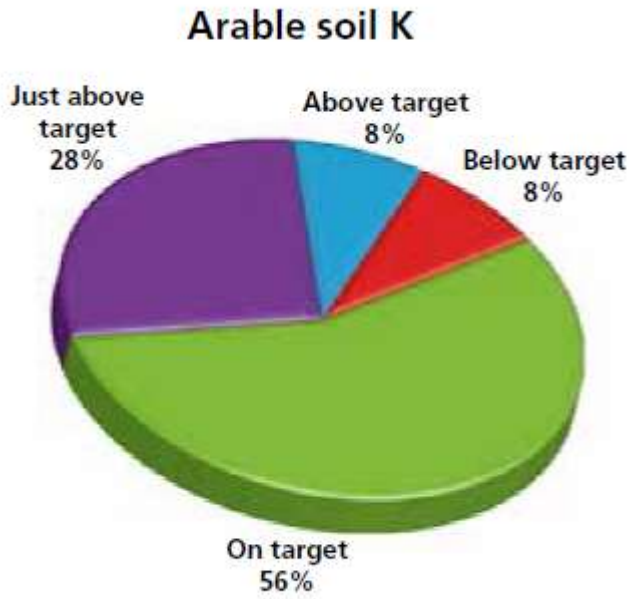

- Farmers that at or above target could save around £43/ha by making better use of soil K reserves

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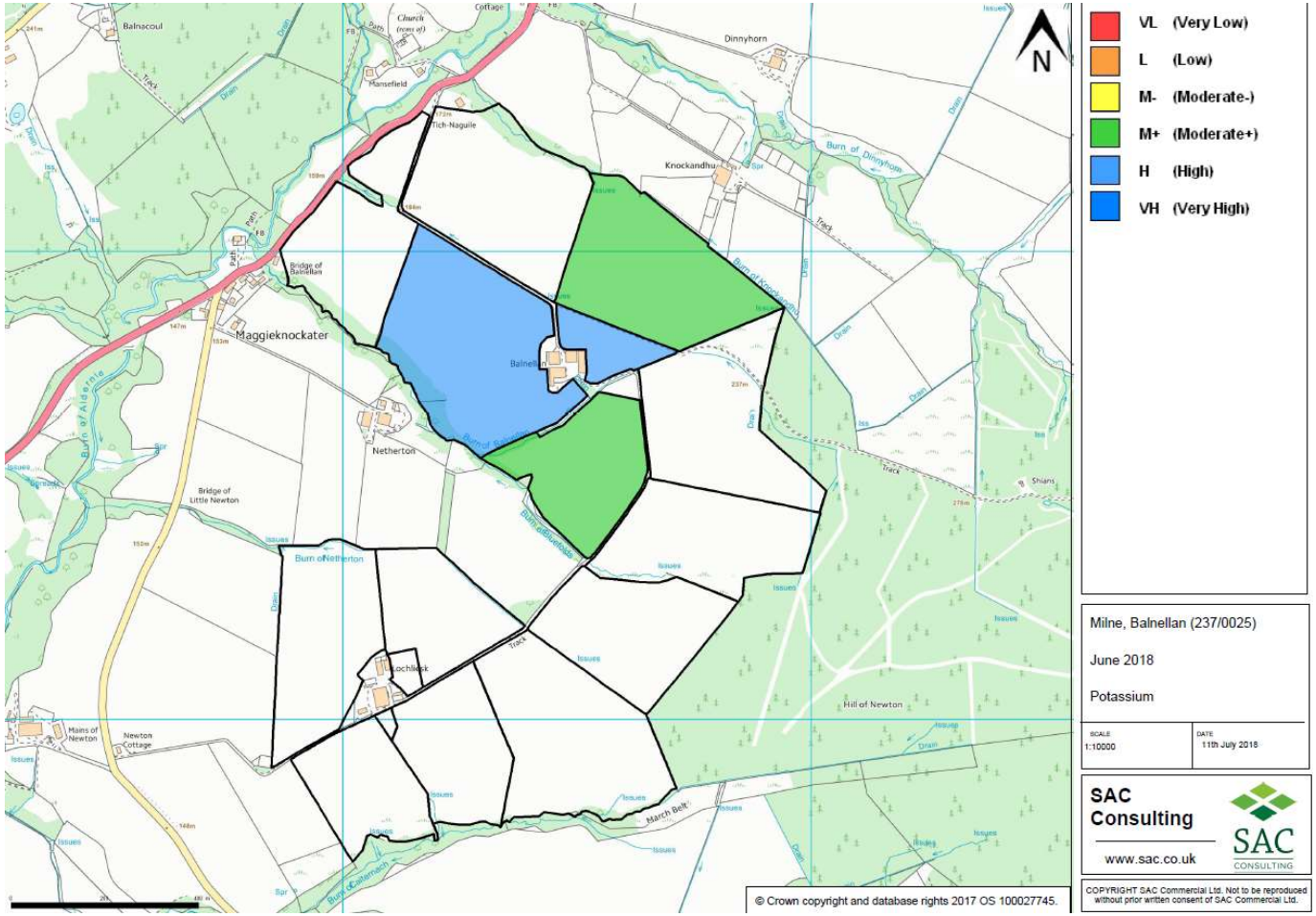

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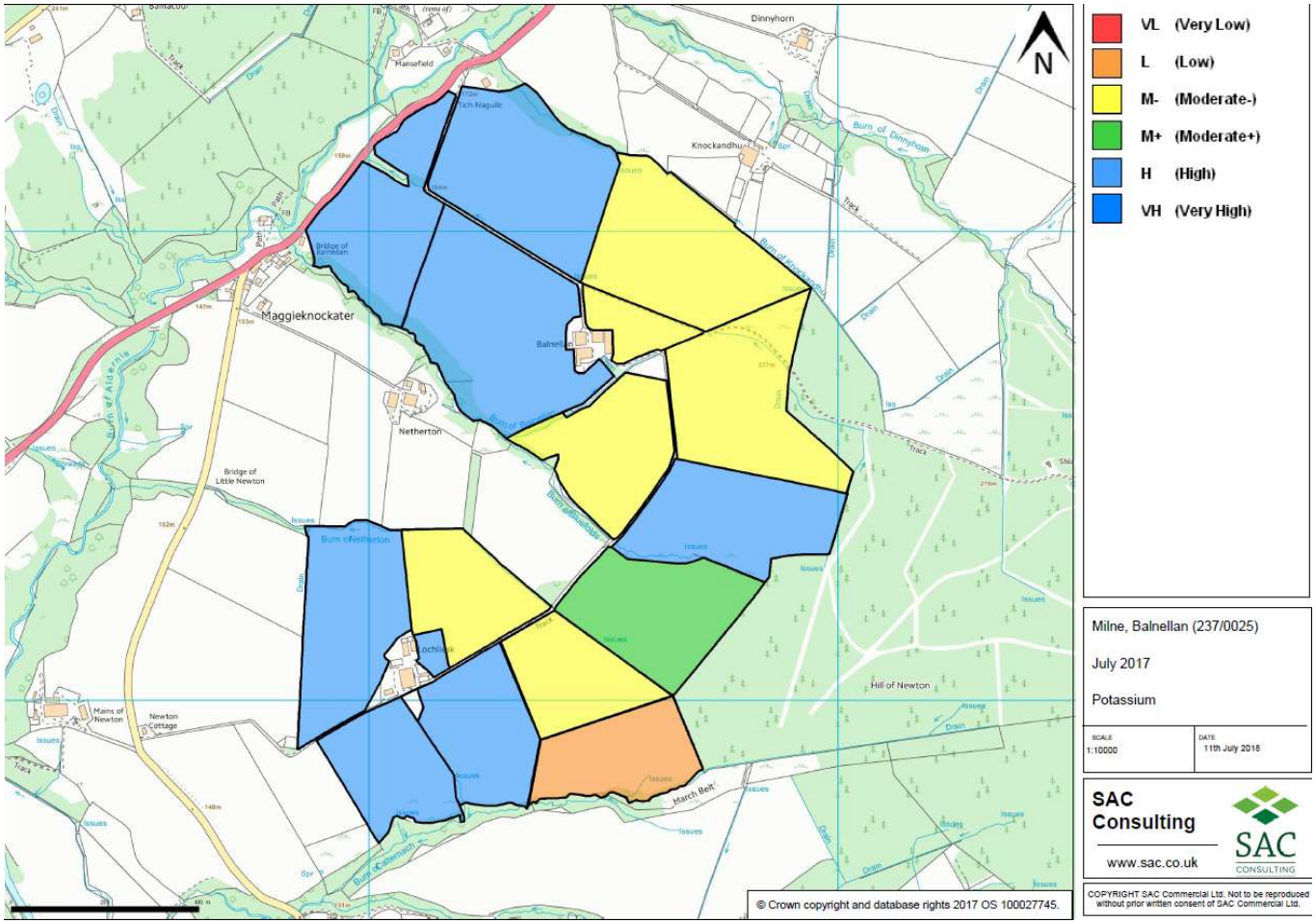

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Potash

- Promotes root development
- Gives strength and stiffness to whole plant
- Clover more sensitive than grass
- Considerable recycling if grazed

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Conserved Grass

- Offtakes can be considerable
- Soil reserves can quickly become depleted especially on light soils
- Rule of thumb apply 2/3 the amount of nitrogen

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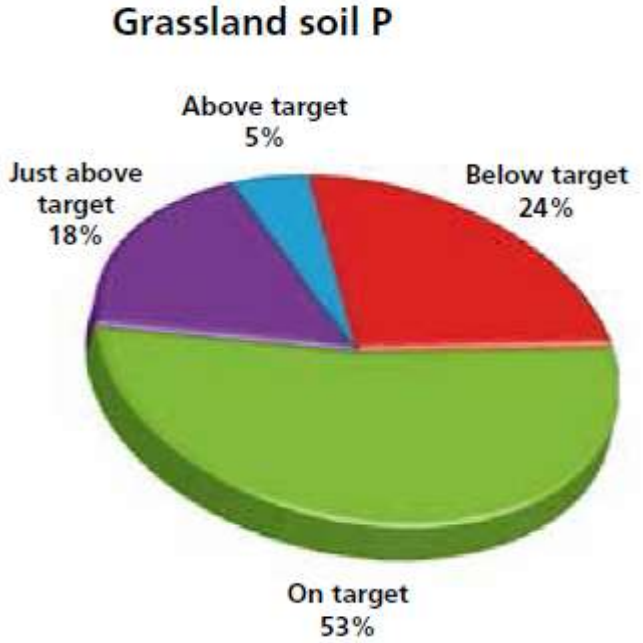

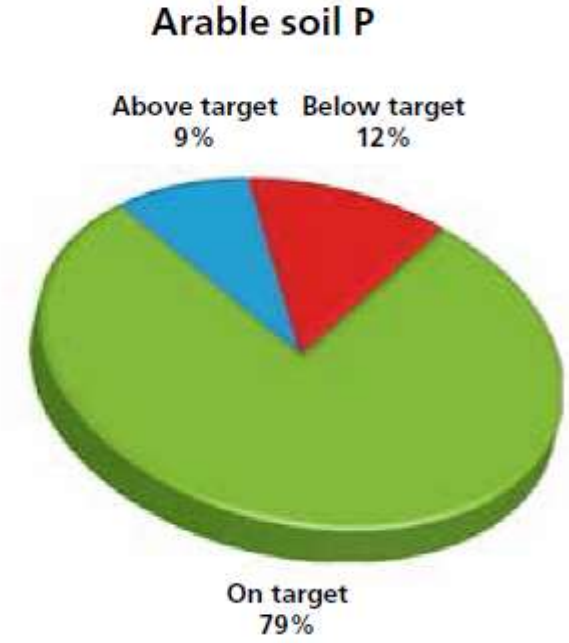

- Farmers that are at or above target could save around £12/ha by making better use of soil P reserves

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P - June 2018

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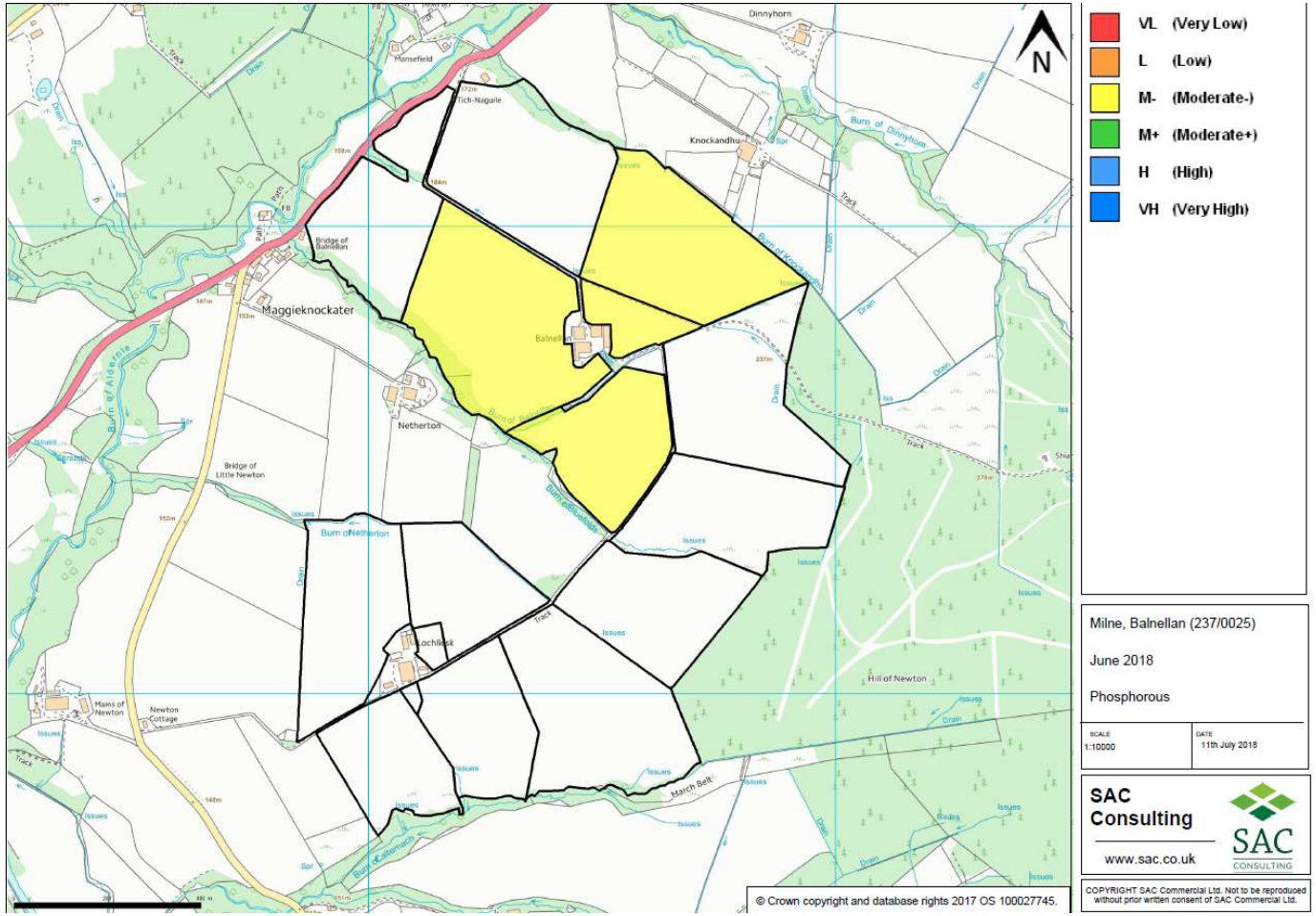

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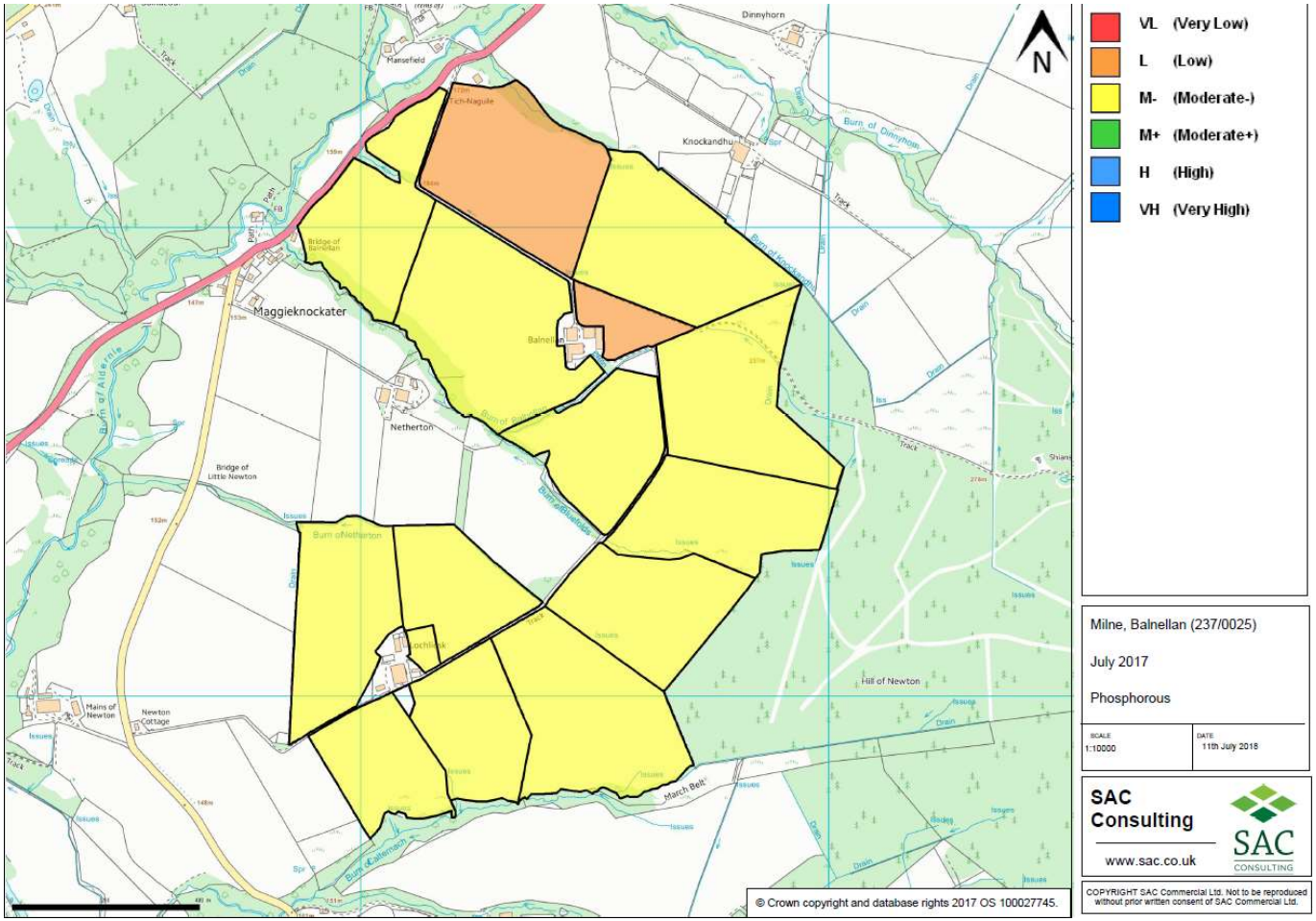

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P

- Over use of P can lead to phosphorus loss from agricultural land to freshwater and impair water quality

- Helps root development, early growth and ripening of seeds

- Clover more susceptible to deficiency than grass

Sulphur

- Atmospheric deposition declining
- Therefore S deficiency becoming more common
- The best guide for S deficiency is soil type and location

Soil Map

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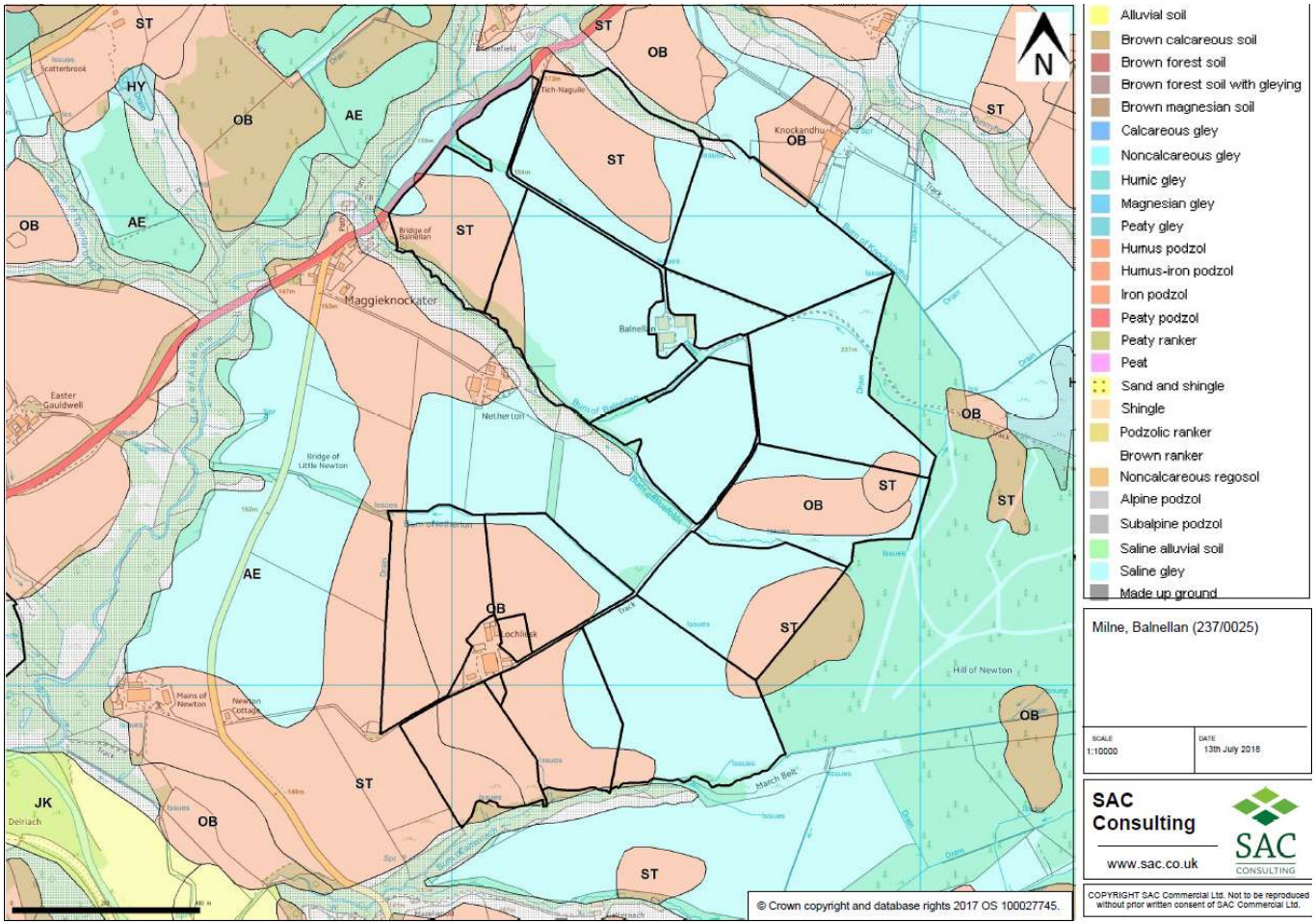

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- 3 meetings over 2 years
- Today we covered:- soil analysis, compaction, soil structure and texture
- Next meeting is on 5th November

  Topics include:- soil biodiversity & organic manures including distillery by-products

Ideas & Issues

- Over to you

Thank You

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