

## Soil pH and phosphorus



- Macaulay Institute now SAC
- Soil Fertility Department
- Long-term field experiments
- Advisory soil samples, tested for pH, P and K
  - Looking at long-term trends
  - Technical notes fertiliser recommendations
- Other information, such as the national soil survey
- Satellite images



## Technical Note TN668



April 2015 • Elec

### Managing soil phosphorus.

- A new soil specific approach to P management is presented that takes into account the relationship between differing soils capacity to regulate P availability for plant uptake.
- Soils have been designated and mapped as index 1, 2 and 3 to reflect inherent soil phosphorus sorption capacity (PSC).
- Soil association groups are listed in order of the most spatially extensive association mapping units for each PSC index.

## Phosphorus technical note

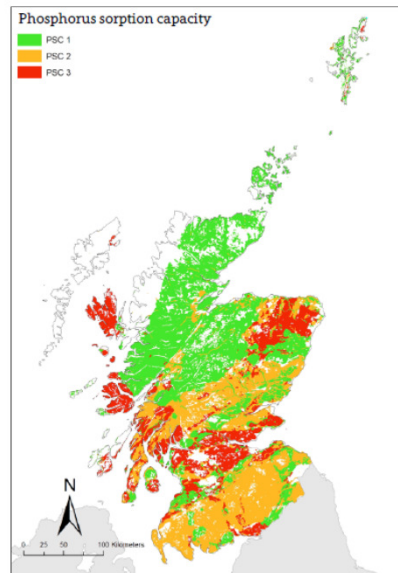


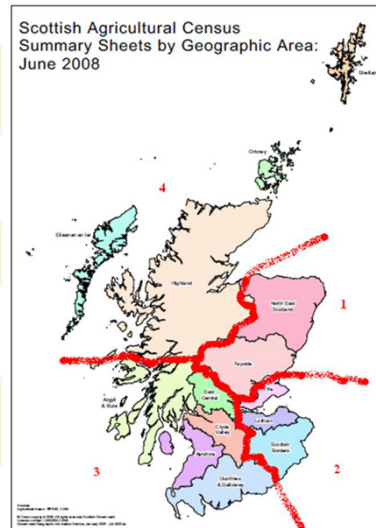
Figure 2. Map of P sorption capacity (PSC) from 1 to 3 by soil association for non-calcareous mineral soils.

## What the problem and future plans



- Two years ago we only had 1 type of soil in Scotland, now we have 3
- In the North West we have two extreme types of soil, shell sand and peaty
  - Causes a problem with the soil analysis and interpretation
- We hope to produce a dedicated soil technical note for the North West (any suggestions/thoughts welcome)

## Advisory soil data

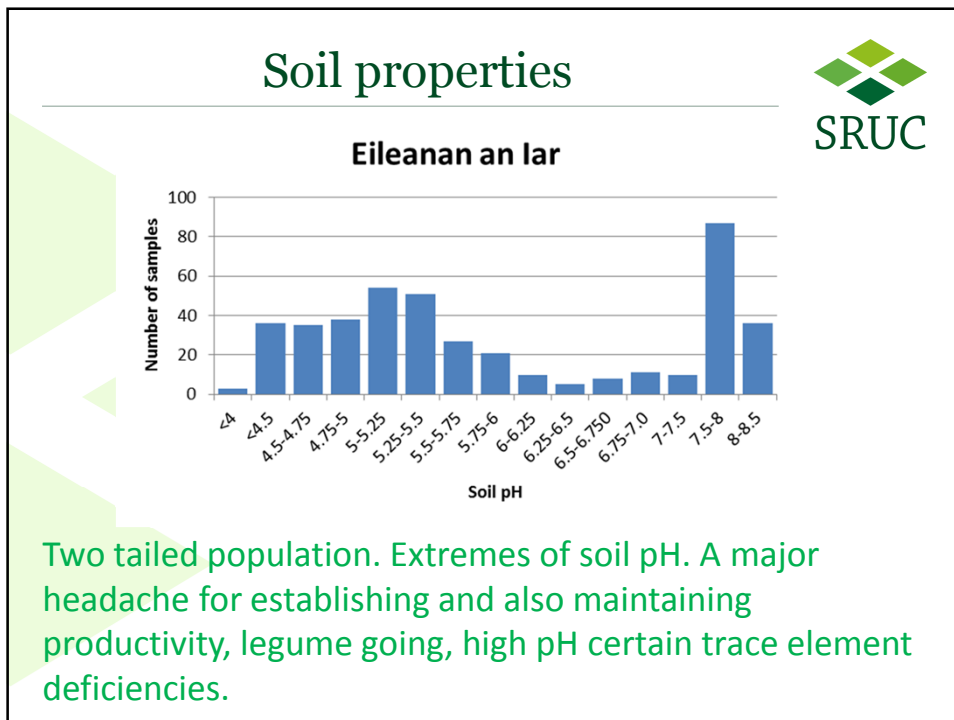
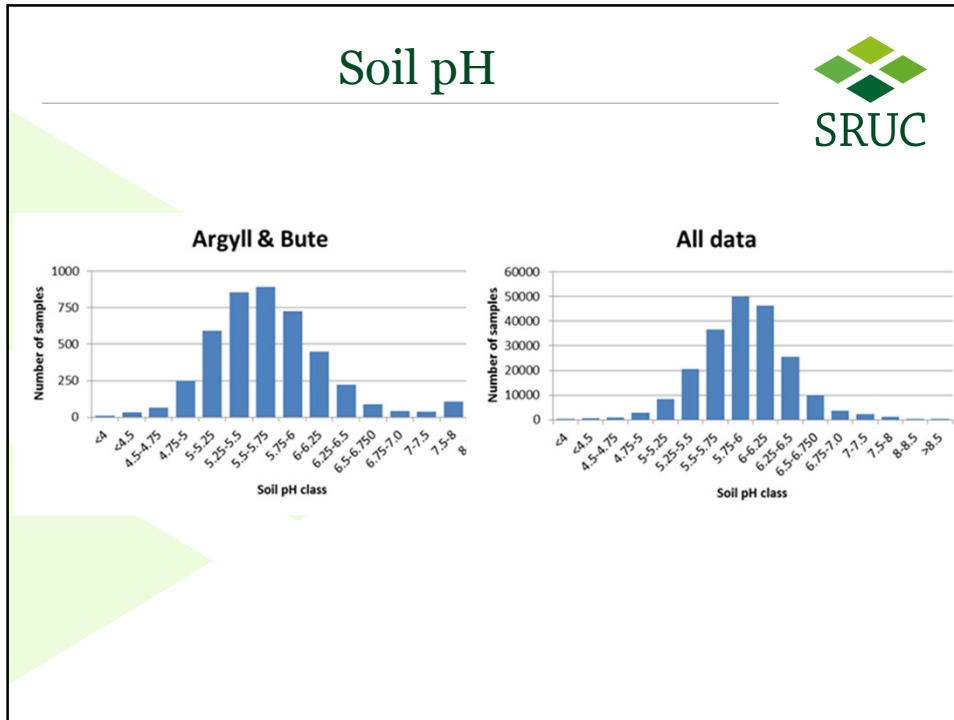


4 physical regions  
Very different  
Soils  
Climate  
Land use  
History

## Soil properties Outer Hebrides



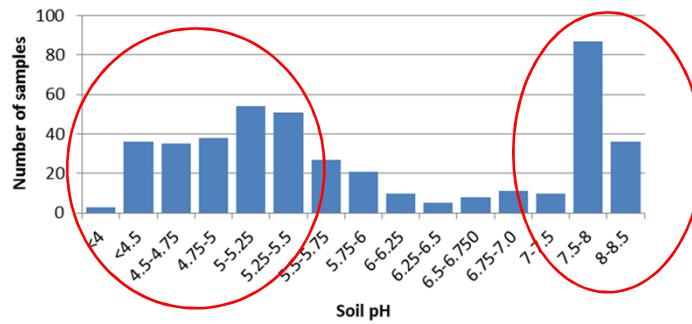
- Approximately 1600 samples collected from 1996-2015.
- Bulk of soils sampled under grass (87%) with 5% from potato/vegetables.
- ~80% where previous crop was grass went back into grass.



## Soil properties



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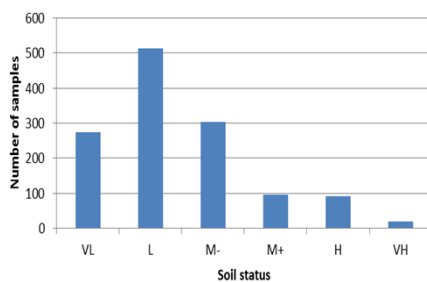


Two tailed population. Extremes of soil pH. A major headache for establishing and also maintaining productivity, legume going, high pH certain trace element deficiencies.

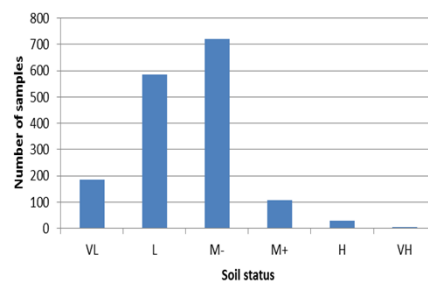
## Soil extractable phosphorus and potash



### Ext-P

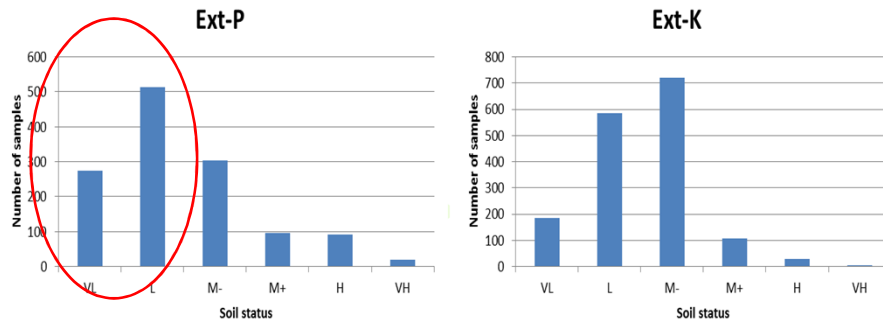


### Ext-K



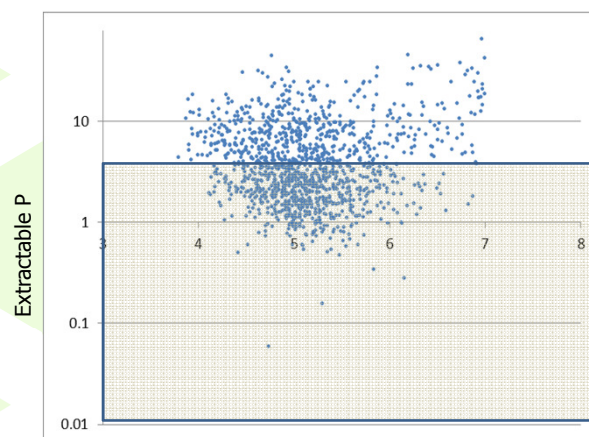
Over half the soils (<math><math>pH</math> 7) had a Very Low or Low phosphorus status.

## Soil extractable phosphorus and potash



Over half the soils (<pH 7) had a Very Low or Low phosphorus status.

## Low extractable P and pH



~750 samples had very low or low extractable P

