RURAL SOLUTIONS SA
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Managing Soil Acidity Technical Update

Subsoil acidity and discussion

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Issues with Managing Subsoil Acidity

- Is it subsoil or sub-surface acidity (10-20cm)?
- What yield penalty is there from subsoil acidity where the topsoil has been ameliorated?
- How quickly does lime move into subsoils?
- Can this process be sped up?

Subsurface acidity example

- pH CaCl2
  - 5.4
  - 4.3
  - 4.9
  - 7.8
  - 8.2
  - 8.5

“Rules of Thumb” with Managing Sub-soil Acidity

- If surface pH is less than 5.0 subsurface acidity can develop
- In most cases > 2.5 t/ha of lime is required on an acid topsoil to get any impact past 10cms
- Lime movement at best is around 25 mm per year
- To have an impact on subsoil layers topsoil pH needs to be equal to or greater than 5.5

Have we seen changes in recent times

- In some regions higher incidence of subsurface layers below 5.0 than surface layers
- Uptake of no till crop and pasture establishment increases time for lime to move down
- Acidity beginning to affect soils with clayier/ finer texture and in lower rainfall areas
- Deep placement of fertilizer impact
- Subsurface layers can be lower in buffering against acidity

Options for treating subsurface acidity

- Higher rates of surface lime
- Liming earlier under no till
- Lime and gypsum mixes
- More soluble Lime sources- CaO
- Deep placement lime
- Alkaline N fertilizer sources eg Calcium nitrate
- Deep soil amelioration using spaders, manures, organic matter and mixing of the A1 and A2 horizons in sandy soils
- Biological movement lime- worms, dung beet
- Calcium fulvates from manures and sewerage sludge

Options for treating subsurface acidity

- Others ??

Web Connections for acidity information

- ***AgEx Website***

http://agex.org.au/project/soil-acidity/

- ***Agricultural Bureau of SA- Soil Acidity Projects***

www.agbureau.com.au/projects/soil_acidity/

- ***GRDC + Soil acidity site***

www.soilquality.org.au/

- ***Nature Maps- hosted by DEWNR***

www.data.environment.sa.gov.au/Land/Land-Management/Pages/home.aspx

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