

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



Thank You to Project Sponsors/ partners

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