Innovative and cost effective solutions to the treatment of soil acidity

Background

Throughout the SA Murray Darling Basin NRM region more than 267,000ha are susceptible to soil acidification, a process that degrades the soil and reduces crop and pasture growth.

This project was developed to provide greater awareness and understanding of soil acidity and to promote a innovative and cost effective solutions to the treatment of soil acidity

The focus area for this work was from north of Hallet to Burra and is a region that was traditionally grazed. Economic pressures have changed farming practices to high yielding intensive cropping with high nitrogen inputs.

As a result surface and sub-surface soil acidity has become an issue.

The method

The project involved 12 landholders. Soil pH mapping and soil sampling took place on their properties, with the total area mapped reaching 126ha.

Results were collated and analysed and presented at a landholder workshop.

Precision soil pH mapping

The results

The use of the on-the-go soil pH machine was used to measure and map the spatial variability of soil pH across three key demonstration paddocks.

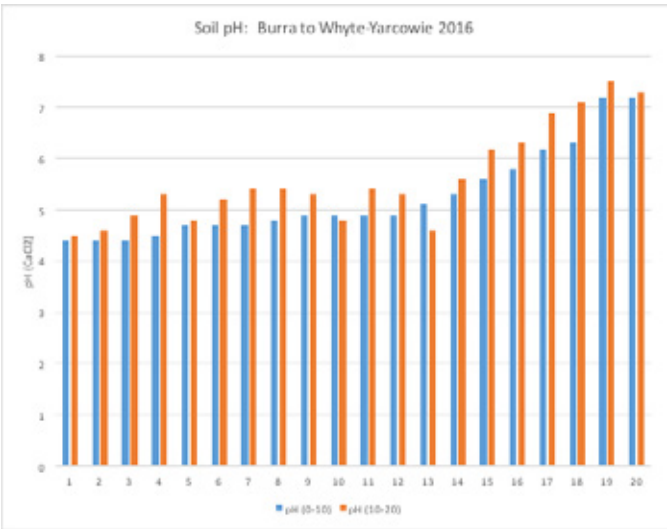
Mapping has shown that there is a large variability of soil pH across the paddocks. On two of the paddocks the soil pH varied between 4.5 and 6.5.

The paddock maps have shown that there are different pH zones within the paddock and that farmers will save costs by applying lime only to those areas that need it rather than applying a uniform or 'blanket' application over the paddock.

One paddock showed that there was no need to apply lime. The other paddocks showed that there was a cost saving (including lime, freight and spreading) of up to 30% compared to a 'blanket' application.

Apart from soil pH mapping twenty paddocks were sampled. The results showed that 70% of the soil samples (0-10) had a pH less than 5.5 (CaCl2) and 30% of the soil samples had a pH less than 5.0 (CaCl2).

A soil acidity workshop was attended by 9 landholders and covered results of the sampling, causes and effects of soil acidity, lime and lime sources, lime trials and precision soil pH mapping. A local farmer also talked about his experiences with managing and treating soil acidity using mapping and variable rate lime application.



Sustainable Farming

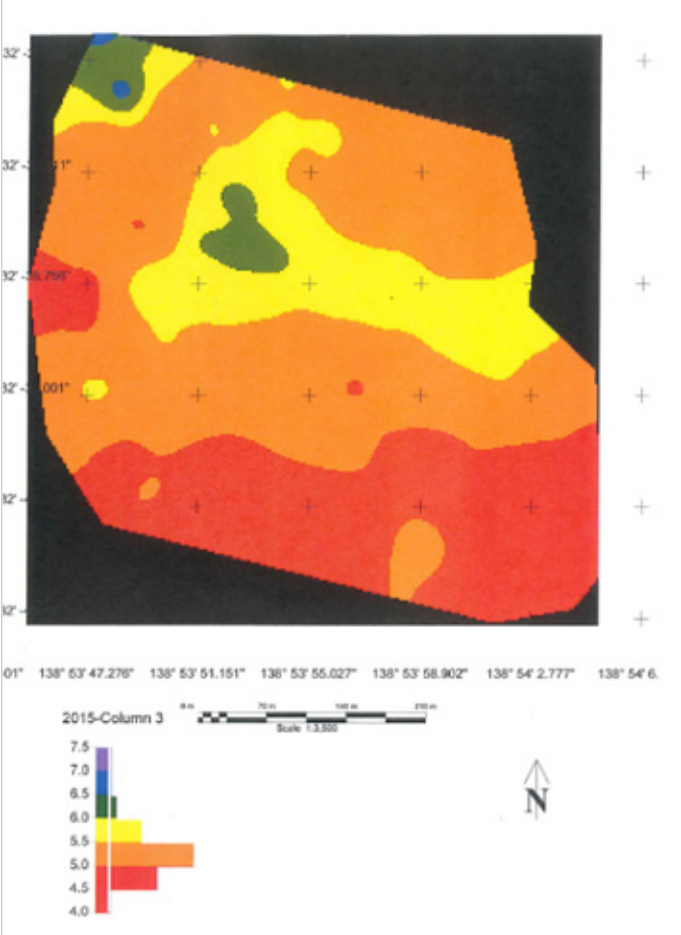
Recommendations

The pH mapping and variable rate liming have been promoted throughout South Australia over the last few years. Landholders adopting and using this technology can improve production and profitability as well as reducing costs.

Conclusion

Mapping demonstration paddocks with an on-the-go pH machine showed a large spatial variability of soil pH and pH zones across paddocks.

The use of soil sampling, pH mapping and the workshop increased landholder awareness and understanding of the issues, causes, effects, management and treatment of soil acidity.



Soil acidity map showing different pH zones.

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For further information contact

Tony Randall
Land and Water Management Team Coordinator

P: 08 8532 9100
E: tony.randall2@sa.gov.au

www.naturalresources.sa.gov.au/samurraydarlingbasin

Australian Government | National Landcare Programme
Agricultural Bureau of South Australia Inc. PATHWAY TO IMPROVEMENT
FIS 94399
Natural Resources SA Murray-Darling Basin
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