Working Together to Deliver Multiple Benefit Messages to Growers Through a Whole Systems Approach to Soil Management.

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Aims

- Give growers in Western Australia the capacity to understand and better manage the economic and environmental impacts on acidic soils.
- Give growers the knowledge and awareness of tools and information available to manage soil acidity.
- Growers to become better equipped through development of new tools and information to make effective adoption decisions to manage soil acidity.
- Growers maintaining viable farming systems through optimum management of their systems.

Background

The Liebe Group is leading a grower driven initiative and has formed an alliance to work collaboratively with Mingenew-Irwin Group (MIG), West Midlands Group (WMG), Southern Dirt and Aglime Australia. Funding has been awarded from GRDC to begin research into the most appropriate liming strategy to maximise return on investment and increase knowledge around the economics of different soil pH management, products and techniques utilising the Lime Economic Calculator.

Farmers in the Northern Agricultural region have experienced extreme climate volatility over the last 15 years including 3 severe droughts and a number of below average rainfall years. As a response to this farmers are looking to improve their farming system through increasing water and nutrient use efficiencies and developing flexible farming systems. Managing soil acidity in this volatile environment is a key component in improving the system.

As part of Liebe Group's previous GRDC funded projects 'Growers critically analysing new technologies for improved farming systems' 2006-2009 and 'Improved stubble soil management practices for sustainable systems in the Liebe area' 2009-2012, surveys of 60 growers in the Liebe area were conducted. This included around 50 members and 10 non-members each time. These surveys asked questions around liming including 'Do you lime?' and 'How many years ago did you start liming?' In 2006, 94% farmers surveyed limed, with that number increasing to 100% in 2012, (Liebe Group Technical Audit Results 2012 Executive Summary). The average number of years since liming was first used is 16 years.

However, when asked what major issues are impacting their farming system, soil acidity is still one of the highest ranking issues. With the uptake of liming 100% but the issue continuing, there is research required to find out what is the best method to overcome soil acidity and barriers to full adoption.

The project team, in consultation with the Regional Cropping Solutions Network, local growers, key researchers and NRM agencies will determine an appropriate development and extension plan to improve soil pH. This will include field trials to provide validation of the economic model against different lime products and rates and will also utilise existing research trials where possible, including an extensive lime x incorporation trial established by the West Midlands Group through the GRDC agribusiness trial extension network and a lime x deep ripping trial established by the Mingenew-Irwin Group in March 2013. By utilising existing research trials, the project adds value to previous investments in this field by ensuring continuity of data and extension messages.

To aid in the extension of liming messages, a Lime Economic Calculator will be used. The Lime Economic Calculator was a grower driven initiative developed after they had seen trials reporting improvements from liming but had trouble quantifying the return on investment. As a result of long term below average seasons, lime has often been the first input taken off the budget, further compounding both financial and environment problems in the longer term.

Environmental benefits will occur through increasing the soil pH, leading to improved soil health. The improved soil health will result in greater economic benefits compounding the improvements as growers are able to further invest in their soil health. A lack of adoption will result in soil pH continuing to decline.

Activities:

1) Develop and implement 4 new trials (Liebe Group, MIG, WMG and Southern Dirt) and revisit 5 old trials (Aglime Australia).
2) Conduct 3 workshops designed to increase knowledge around the economics of different soil pH management products and techniques utilising the Lime Economic Calculator.
3) Conduct 6 case studies throughout WA featuring growers who have adopted various soil acidity management practices (Liebe Group, MIG, WMG and Southern Dirt).
4) Deliver annual reports to communicate results.
5) Extend results on a state and national level.

Outputs:

1) Six detailed case studies on improved soil acidity management practices will be produced and will include an economic analysis of the practice. Extension of information will be via each groups networks to ensure over 500 businesses throughout WA are exposed to the case studies.
2) Annual results and trial reports produced based on the assessment and economics of best management practices for soil acidity management. Nine trial reports, one each by WMG, Southern Dirt, MIG and Liebe Groups and 5 by Aglime Australia, produced annually (2016 & 2017) and extended to farm businesses across WA.
3) A series of three workshops looking at addressing the issue of soil acidity and discussing economics of different ways to ameliorate acidic soils.

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