GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

# SOIL AND PLANT TESTING FOR PROFITABLE FERTILISER USE

## Sampling complete in flagship soil and plant testing project

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**Published: GRDC Media Release 15 May 2019 | GRDC Project code: 9176604**

**The soil sampling phase of a new Grains Research and Development Corporation (GRDC) investment has been successfully completed as the project team now looks to provide nutrient recommendations based on the results.**

Sampling represents a major milestone in the two-year GRDC investment, 'Using soil and plant testing data to better inform nutrient management and optimise fertiliser investments for grain growers in the southern region'.

The project, which is being led by Agronomy Solutions in conjunction with Australian Precision Agriculture Laboratory (APAL), CSIRO, Landmark, Hart Field-Site Group and AgCommunicators, aims to improve nutrient management best practice through the increased use of soil testing and providing grain growers in the southern cropping region with the confidence, knowledge and ability to make more effective and profitable nutrient management decisions.

GRDC Manager Soils and Nutrition – South, Stephen Loss, said the project would quantify the benefits to growers of adopting soil and plant testing to inform their fertiliser decisions.

"The rates of soil testing in the southern region are lower than other regions, particularly Western Australia, and we think there's an opportunity for growers to save on fertiliser inputs where their residual soil nutrient levels are high," Dr Loss said.

"In many cases there is also upside in putting on more nitrogen than what is customary to achieve higher yields, higher returns and better grain protein, especially in favourable seasons.

"We are working with agronomists and private consultants, helping to take soil samples and then interpreting results and providing recommendations for the growers.

"We will set up strip trials in paddocks, comparing the fertiliser recommendations made from the soil test results (informed rate) against an uninformed rate (grower practice/knowledge), a nil rate (to validate a response or non-response) and potentially a high yield-limiting rate."

As part of the project, 100 participating growers and agronomists will be provided with accredited soil sampling and analysis, interpretation of results and fertiliser recommendations for six paddocks a year.

Growers are required to plant the paddocks to wheat in the project year, before selecting two production zones within that paddock for experimentation. A one-hectare area will then be chosen within the production zone for soil sampling. Analysis will allow for the identification of potential nutrient yield limiters and other constraints such as soil acidity, with results supplied to project agronomists to provide recommendations to growers.

In the first stage of the project, in February, project co-ordinators provided technical detail around methodologies and protocols for growers and advisers at a series of workshops across the southern region.

Dr Loss says the workshops helped the GRDC gain valuable insight into why soil testing rates in the southern region are low.

"Some growers and agronomists don't currently see the economic benefit of conducting soil testing," he said.

"The perceived benefits don't outweigh the monetary costs, as well as the time and effort to take samples and to change fertiliser recommendations for each individual paddock.

"Part of the lack of perceived benefit, certainly amongst some growers, is a lack of understanding of how to interpret soil tests and uncertainty of what the numbers mean."

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Consultant and project leader Harm van Rees said general project feedback received from the workshops was positive.

"Growers know that phosphorous and nitrogen are two limiting nutrients and they don't want to oversupply them because they're expensive, but they don't want to undersupply either because that would result in lower yields," he said.

He said fertiliser recommendations were made to project growers and agronomists over the past few weeks.

"Deep soil nitrogen and topsoil phosphorous are the focus, but we are keeping an eye on potassium and sulphur levels as well," Dr van Rees said.

"We're also undertaking tissue testing during the season which will give us information on micronutrient requirements."

Crop walks are expected to be held later this year, depending on seasonal conditions, with the aim to show nutrient responses at the end of tillering, growth stage 30. In addition, further workshops will be held later in 2019.

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APAL, AGRONOMY SOLUTIONS, CSIRO, Nutrien Ag Solutions, HART, AgCommunicators

**WITH SUPPORT FROM:**

**Mallee Sustainable Farming, Southern Farming Systems and Eyre Peninsula Agricultural Research Foundation**