



Clay testing vital to hone nutrient management

Research is highlighting the importance of testing clay before applying it to paddocks, as its properties can vary significantly and affect nutrient availability and uptake by grain crops.

Department of Agriculture and Food (DAFWA) researcher David Hall said a survey of 30 WA growers who had spread clay on their land found that only a quarter had tested clay pre-application.

“However, 10 to 20 per cent of WA clay samples that we’ve assessed, as part of new research, have a high phosphorus retention index (PRI), making phosphorus less available to crops grown on clayed paddocks,” he said.

“Meanwhile, other clays can supply enough potassium and/or sulphur to change the soil from deficient to adequate for these nutrients.”

The research, which is developing recommendations for nutrient management after claying, is funded by the Grains Research and Development Corporation (GRDC) through its More Profit from Crop Nutrition (MPCN) initiative. It is being conducted by DAFWA and Murdoch University researchers.

Mr Hall said there was no doubt that spreading clay or delving sub-soil clay boosted crop production, with long-term trials showing consistent yield increases of more than 30 per cent.

“Yield increases are achieved by overcoming constraints including uneven distribution of soil moisture, low nutrient holding capacity, potassium deficiencies and wind erosion,” he said.

“But improved nutrition after clay application is the next frontier of research.”

Mr Hall said pre-application tests of clay, and the soil to which it was applied, were important to determine clay rates and to manage post-clay crop nutrition.

“Testing clay sources – using any major soil testing laboratory – will provide a comprehensive analysis that includes PRI, standard nutrients, percentage of clay, boron and particle size,” he said.

Mr Hall said growers should also closely monitor treated paddocks to determine the need for extra nutrients such as phosphorus or nitrogen.

MPCN field and laboratory research in the next two years will further investigate the relationship between clay rates, types and incorporation methods on nutrient availability and crop nutrient uptake on a range of sands across the WA grainbelt.

Information about clay application can be found at the GRDC Hot Topic www.grdc.com.au/HT-ClayingToAmeliorateNonWettingSoils.

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Caption: DAFWA researcher David Hall in a soil pit briefing growers about changes to the soil profile from clay application. *Photo by Richard Bell, Murdoch University.*

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