

# Holistic soil to boost productivity

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“Soil constraints don’t occur in isolation, so we need to understand how individual constraints interact in order to create the best management systems for the long-term,” Mr Belford says. Credit: Natural Resources Conservation Service Soil Health Campaign

Western Australia has launched Soil Constraints – West, a flagship initiative bringing together research on a range of farming problems that limit agricultural production.

Specifically these problems are non-wetting soils, sub-soil constraints,

soil compaction and soil acidity, which cost WA growers more than \$1.6 billion annually.

"To put this into perspective, soil constraints cost four-times more than frost damage," according to committee member John Even, a Calingiri grain grower.

"If you ask where we're going to get the next major increase in production—from genetics, technology or blue sky—this is the low-hanging fruit. We can do this now."

Chair Bob Belford says the \$33 million five-year endeavour goes beyond short-term fixes.

"We have the potential for rising yields but constraints on our soil system are holding us back," Mr Belford says.

"We need to take a long-term holistic view of the soil system and get away from focussing on just acidity or just non-wetting or just compaction.

"Soil constraints don't occur in isolation, so we need to understand how individual constraints interact in order to create the best management systems for the long-term."

To illustrate this interconnectedness, Mr Belford points to sub-soil constraints, which include nutrient deficiencies, toxicities, salinity, waterlogging, compaction and acidity.

Greater understanding needed for flow-on effect

Several of these can occur in a single paddock, and while growers might be able to identify problems, there is little understanding of how they affect one another, and thus how they can best be managed.

He emphasises the need to link research knowledge to practical application for industry and growers.

"The technical solutions for acidity are well known, but not enough deep-soil testing for pH is being done, so the lime recommendations that manage surface acidity are not applying for the whole profile," Mr Belford says.

"This project takes an industry-wide focus, from the lime pit directly to application on the farm."

Plans to battle acidity include a doubling of agricultural lime use in WA, guided by simpler and more structured testing.

Mr Belford says Soil Constraints – West is a timely initiative given that 2015 is the International Year of Soils.

"It's all about healthy soils for healthy lives. [They are] fundamentally important for human life, nutrition, climate change mitigation and for sustainable production systems," he says.

Provided by Science Network WA

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