

# On level ground

Mastering your soils for greater productivity and profitability

*A grower stands in a fallow block, grabs a fistful of earth and lets it run through his fingers. "God's country," he says.*

Not all farms are on what are considered to be the best soils, but all farmers can make the best of the soils they have by implementing an improved farming system that promotes good soil health.

We know that the soil is the foundation on which a healthy and productive sugarcane crop is grown, and is one of the first things considered when planning farming activities. And yet there is still much to be understood when it comes to soil health.

The Sugar Yield Decline Joint Venture was a long running project that investigated the causes of yield decline in the sugar industry and then went on to develop a series of science-based recommendations. Although the learnings from this project are vast and complex, improving soil health was the focus and an improved farming system was identified that would, over time, restore the health of sugarcane soils. The improved farming system involves the implementation of four main practices:

1. Fallow rotation crops and continuous cropping
2. Zonal tillage
3. Controlled traffic
4. Crop residue/organic matter retention

*The term soil health has been defined in various ways, but here, is referred to as:*

***A measure of soil physical, chemical and biological condition that reflects the capacity of a given soil to support a profitable and sustainable farming enterprise.***

SRA has identified poor soil health as an impediment to productivity and profitability and is investing in a number of areas that aim to improve the quality of our soils.

This investment ranges from building on the work of the Sugar Yield Decline Joint Venture, to developing and benchmarking a standardised, industry specific, soil health or soil quality measurement test, building soil management capacity within the industry and further investigating the science around soil biology and the root system.

## Soil Science

Research is continuing within the area of soil health. To build on the science that has previously been conducted, focus is shifting to soil biology and the root system.

An example is the work to study the efficacy of a bacterial biocontrol agent for controlling root-knot nematodes. You can read about the project in the story on page 18-19.

**Below:** Masterclass held in Ballina, March 2017. Feedback from participants included: "Very good workshop with excellent information that was well presented. Format with theory followed by 'hands on' opportunities was also excellent."

## Extending the science

A major development and extension project was launched this year to provide industry with standardised soil health measuring tools and tests for the field and the lab.

With collaboration from growers, productivity services, millers, harvester operators, university researchers and SRA, this project brings experts from various fields together to determine what chemical, physical and biological indicators are the most relevant to our soils and crop.

The project aims to benchmark soil health based on specific regional conditions. In other words, determine soil health targets based on what is achievable on a specific paddock, which may have duplex sodic soils versus down the road on deep alluvial riverbank.

The field trials comparing long-term improved, conventional, and transitioning farming systems will form the baseline to also demonstrate and extend the implication of farming practices on soil health, profitability and productivity over time.

## Capacity Building

The Soil Biology and Soil Health Masterclasses are designed to impart knowledge through practical masterclasses that focus on how the knowledge gained through science can be implemented on farm to improve productivity and profitability.

Practical examples from growers who have implemented the new farming system brings the science and practice together.

The masterclasses have so far been delivered to growers and advisors in Ingham, Mackay and NSW and will be delivered in the Far North, Burdekin and Bundaberg regions in 2018.

