Soil health is seen as a major opportunity for improving the productivity and profitability of sugarcane production.

Mastering your soils for greater productivity and profitability

A series of workshops is delving deep into the soil to provide practical information on soil health to farmers.
By Sebastian Garcia-Cuenca, Adoption Officer, Condong

In recent times our knowledge, understanding and interest in soil biology and the impact of management on soil organisms has increased.

In the past we focussed almost entirely on root pests and pathogens, while we now know that nurturing the beneficial organisms that also occur in soil is not only the way to enhance root and soil health, but is also the foundation of profitable and sustainable land management.

The sugar industry is regularly highlighting its growing concern about the health of its soils.

Growers interviewed as part of a 2016 SRA Grower Survey saw better soil management as one of the main options for improving productivity and profitability over the next five years.

This year many growers have attended a BMP soil health workshop, participated in, visited or read about soil health research trials, demonstration projects or neighbours doing something different in their paddocks.

We have heard, told and asked about soil physics, chemistry and biology under various conditions, but we understand that there is more to learn, and practices to implement to improve soil health.

Farmers who are making changes to improve soil health on their farms are seeing some positive results.

As part of SRA-funded research looking at the impact of a balanced and diverse soil food web on soil health, Dr Graham Stirling has been investigating the relationship of key farming system components (including minimum tillage, trash blanketing, legume fallow and controlled traffic) to the incidence of soilborne pests and pathogens.

Dr Stirling cautions that while the new farming system's components are critical to improve soil health, they don't provide immediate benefits.

"It takes time and patience to improve soil biology and the general health of the soil," he said.

His research also shows that increasing soil organic matter levels is the key to reducing pathogen loads and ultimately restoring the health of sugarcane soils and root systems.

"Organic matter is the energy source that fuels the soil food web. Without it, pest and pathogen- supressing soil organisms – mainly fungi, bacteria, nematodes and microarthropods – cannot function and are simply absent or in very low numbers. Consequently, sugarcane soils are largely dominated by pathogens and plant parasitic nematodes."

Importantly, Dr Stirling believes that while growers are generally aware of the physical and chemical factors that limit the productivity of their soils; the role of soil microbes, flora, fauna and overall soil ecology is more mysterious.

Starting early 2017, Dr Stirling, assisted by a range of experts including growers such as Ashley Peterson, will offer hands-on masterclasses focusing on soil biology.

These practical and interactive workshops will give growers and advisors the opportunity to see these microscopic creatures and learn about their impacts on soil, roots and crop health.

Farmers will also be assisted in developing practical, long term action plans to improve the biology of the soils on their farm.

Dr Stirling's latest book *Soil health, soil biology, soilborne diseases and sustainable agriculture* will be provided to all participants. This book contains a wealth of information about sugarcane soil health.

If you would like to see some of these microscopic creatures and learn how to encourage them in your soil, then this is your opportunity.

To register, please complete the registration form available from your local productivity services or SRA website in the events tab: http://www.sugarresearch.com.au/page/Your_SRA_at_work/Events/Soil_Health_and_Soil_Biology_Masterclass/

More information

Sebastian Garcia-Cuenca

0421 349 995

Dates

2017

Ingham

28 February and 1 March 2017

Mackay

14 March and 15 March 2017

Ballina

28 March and 29 March 2017

Coming in 2018

Far North

Ayr

Bundaberg

Ashley Peterson – Hervey Bay

When asked about the soil health benefits of combining controlled traffic, raised beds and soybean rotation crops, Hervey Bay canefarmer Ashley Peterson said that within five years, his soils had much better tilth, which is a significant change compared to his soils 15 years ago. Under the previous system, his soils were compacted and cloddy.

Ashley said that improvements in soil structure and tilth led to improved root penetration and crop growth. In addition to soil health benefits, he said: "The changes we made have had a huge impact on our costs, productivity and profitability, so it has been a financially rewarding process".

The full story on Ashley's changes is available in the new book *Soil health, soil biology, soilborne diseases and sustainable agriculture*.