

Masterclasses in soil health and soil biology for the sugar industry

A TOTAL of 252 sugarcane growers, productivity services staff and others attended a series of 'masterclasses' in soil health and soil biology that were held in 2017 and 2018. During those classes they had the opportunity to see some of the microscopic organisms that are found in soil and learn how sugarcane farming systems could be modified to improve soil biological health.

The classes were run by Dr Graham Stirling (Biological Crop Protection), Dr Anthony Young (University of Queensland), Dr Jay Anderson (University of Queensland) and Mr Sebastien Garcia-Cuenca (Sugar Research Australia). But the highlight of each class was the presentation by one of three growers: Ashley Petersen, Tony Chapman and Simon Mattsson. They explained how they were able to modify their farming system and discussed the soil health and economic benefits they had obtained.

The masterclasses provided intensive workshop-style training sessions covering key aspects of sugarcane soil health. The

sessions were designed to be interactive and practical, and aimed at challenging participant knowledge and inspiring adoption of on-farm practices that deliver improved soil health outcomes.

Key to the success of the program was the hands-on examination of material significant to soil health, including bacteria, fungi, oomycetes, nematodes, microarthropods and larger fauna.

Participants also looked at:

- Healthy and unhealthy sugarcane roots;
- Were shown how the biological status of soil could be assessed; and,
- Took part in practical planning sessions on improving on-farm practice.

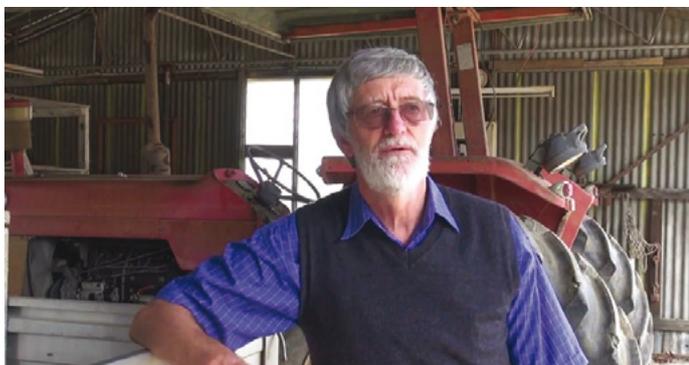
Their soils under the microscope

For many who attended the classes, it was the first time they had successfully used microscopes. This element was of critical value because it had a transformative effect on the participants who were then inspired to better understand the biology of the land they work or have influence over.

The interactive sessions were delivered by the small team of professionals. Each presenter delivered content in their specialist field and also provided support during the practical sessions when a range of soil organisms were being inspected.

Prior to the commencement of the classes, soil samples were collected from each location and various analyses of biological health were undertaken to provide local data for discussion in the class. The analyses and interpretations for each location were included in a workbook provided to each participant so that they could refer to the analyses at a later date and also see data from other locations.

All participants were strongly encouraged to engage with the presenters, particularly when there were concerns about the



Dr Graham Stirling (Biological Crop Protection).



Dr Anthony Young (University of Queensland).



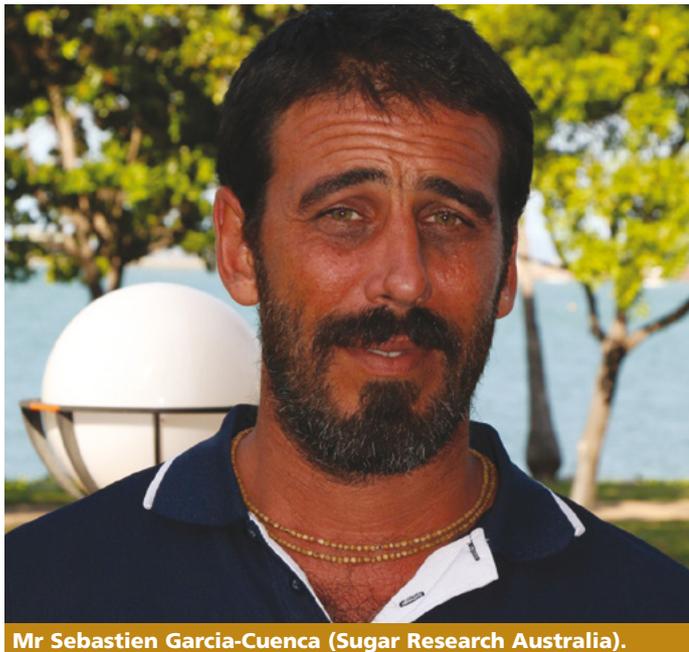
Dr Jay Anderson (University of Queensland).

utility of particular practices in their unique growing conditions. While several themes associated with soil health were delivered (for example, soil carbon, compaction, root pathogens), there was a strong focus on the practicality of practice change.

Without question, instrumental to this were the presentations made by growers who had adopted the key elements of an improved farming system. These growers demonstrated to the participants that meaningful improvements to soil health could be achieved, and that this translated to improved economic returns to the farming business.

Positive feedback

The masterclasses were an overwhelming success. Feedback forms were offered to participants following most classes and 100 per cent of the respondents considered the training activity useful, interesting and engaging. Just two respondents (0.6 per cent) stated that they would take no action to improve soil health following the masterclasses. Informal feedback received from participants indicated that they considered the master classes one of the most valuable industry workshops they had ever attended. In 2018, of the 51 respondents to the question: Do you have any suggestions to improve this course? 67 per



Mr Sebastien Garcia-Cuenca (Sugar Research Australia).

cent provided extremely positive feedback, 31 per cent offered constructive comments and only one person was negative.

Following negotiation with SRA during project inception, it was considered worthwhile to include an Action Plan session so as to generate tangible outcomes for growers and advisors. While efforts were made to incorporate this outcome, it proved difficult to achieve because the day was already very intensive.

In hindsight, it was probably too much to expect participants to develop an appreciation for the biological properties of soil and also generate a soil improvement plan in one day.

Part of the success of the master classes was that they inspired the participants to investigate their own soil health. Change will obviously take time, but after the principles of soil health are instilled, it's likely that in many small and large ways, the grower participants will incorporate some of what they learned into their farming practice.

It is clear that sugarcane industry stakeholders are becoming increasingly aware of issues surrounding soil productivity and sustainability. It is also clear that implementing the Improved Farming System not only improves soil health, but also improves profitability through sustainable yield gain and input cost reduction.

Going forward?

The Soil Health Masterclasses were so well-received by participants that conceivably the learnings from the delivery of this project could be adopted within a broader sugarcane industry context to deliver broad-based returns on investment.

It may be that, just as the 6-Easy Steps have been widely delivered throughout the Australian industry, the next iteration of the Soil Health Masterclasses could well reach out to a greater cross-section of industry stakeholders and generate long-term, meaningful practice change. The challenge for the sugarcane industry is to deliver the message and material in an engaging way and ensure that future participants appreciate the dynamic biological communities that underpin the productivity of their soil.

Drawn from: Stirling G, Evers A, Young A, Anderson J, Garcia-Cuenca S. 2018. Master Classes in Soil Health and Soil Biology for the Sugar Industry. Final Report 2016/025. Sugar Research Australia, Brisbane.



Andrea Evers.

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COMPLETE NUTRIENT MANAGEMENT STRATEGY

The LiquaForce VRA Demonstration Day will be held in Tully, Far North Queensland on Wednesday 26th of September.

RSVP for bus by Sept 21st.

If you're interested in attending the demonstration day please call the LiquaForce team on (07) 4776 5711

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The LiquaForce VRA Demonstration Day will include an active in block nutrient variable rate liquid application demonstration on farm. LiquaForce will also be hosting a bus from Ingham for those in the Herbert region who would like to travel up for the event.

The LiquaForce Variable Rate Liquid Applicator has been developed with the assistance of funding awarded as part of the RT3 Water Quality Grant Scheme.

The invention will deliver game-changing abilities to growers in applying nitrogen and phosphorous at specific rates across all paddock variables.