Australian Government

Department of Agriculture and Water Resources

National Landcare Programme – Sustainable Agriculture Small Grants 2015-16

Case Study SGR1-0085

Healthy Soils for Healthy Farms

LachLandcare

1. What was the problem/issue for this project?

Through the previous efforts of LachLandcare Inc. we became aware of a critical gap in the knowledge of many farmers of the complex relationships between the physical, chemical and biological components of the soil and the effects of farm management descisions on the long term health of the soil and it's production potential.

2. What we did

The Healthy Soils for Healthy Farms project was designed to increase the awareness of farmers in the Lachlan catchment of the current best practice advice for regenerative soil management and increase their skill level and knowledge base so that they can begin to make a change in their farming enterprises.

It was proposed that six demonstration sites would be established across the Lachlan catchment, where soil testing could be undertaken to provide the owners with information to begin their adoption of new management practices that would support the regeneration of the soil. This learning and information would also be extended to the wider farming community through on-farm workshops where participants would be introduced to and gain a greater understanding of the factors relating to soil health in their region.

The demonstration and workshop host sites were identified through an EOI process that was sent out through the LachLandcare partnership network in June 2017. EOIs were received from 13 farmers and a selection panel chose six to promote engagement and access to information across the whole catchment, as well as sampling a range of productive landscapes and enterprises. Soil testing was then undertaken on sites chosen by the farmers that were representative of conditions in the region (soil type or land use) or exhibited a soil constraint that was common in the local area. Soil samples were analysed for both standard agricultural soil analysis as well as biological soil analysis.

LachLandcare Inc. secured the expertise of David Hardwick from the agricultural consultancy SoilLandFood (www.soillandfood.com.au). David is an agro-ecologist with over 20 years experience in sustainable agriculture and since setting up SoilLandFood has completed numerous soil health extension projects throughout eastern Australia in partnership with many Landcare groups and other NRM organisations.

The soil health workshops were delivered in August and September 2017 at the six demonstration sites, hosted by local farmers in the Goulburn/Yass, Boorowa, Young/Weddin, Bland/Temora and Condobolin Districts at Currawang, Rye Park, Milvale, West Wyalong, Tullibigeal and Mossgiel.

During the workshops David presented information on the the interactions between plants and microbes, the importance of functioning energy, nutrient, water and carbon cycles for improving soil health, the effects of various soil constraints on production and the various management options available to graziers and croppers. David's presentation style during the theory component of the workshops was fun and engaging and the participants got to engage in role-playing games that made understanding the complex plant/microbe interactions easy and memorable.

The second part of the workshops was completed out in the field where participants got the chance to practice their soil testing skills on their own soil samples, as well as at a soil pit and see how various soil health factors changed across the soil profile. These soil pits were dug at the sites

where the earlier lab soil tests had been collected. This provided a great opportunity to discuss how to interpret lab based soil tests and how to perform similar field observations of some of the more important soil health properties, such as aggregate stability, infiltration rate, pH, soil salinity and sodicity, root depth and volume, level of groundcover and presence of beneficial soil organisms. This hands on approach gave the participants the skills and confidence to reinterpret any soil tests they had previous completed on their own properties and to undertake their own field tests to help monitor changes in their soil as a result of trialling new management strategies.

Filming was also conducted at each workshop and this material was later edited to form a series of educational videos, made accessible on YouTube. Follow up interviews with some of the workshop participants were also conducted to help promote the importance of soil health management.

3. How our project activities were measured/recorded

Participation at the workshops was recorded on a sign-in registry. At the completion of the workshops participants were given a voluntary evaluation form, which provided feedback on the quality/suitability of the information, the quality of the presenter and the overall success of the workshops. Engagement with the online resources was recorded by the page/video views.

Many attendees thought the workshops were the most informative and well designed they had ever attended. All attendee's enjoyed the roleplaying component and felt that it made a very complex topic very simple and relatable. Many of the attendee's would have enjoyed follow-up sessions, particularly on topics such as grazing management, soil additives and their effectiveness and weed management, particularly the use of grazing techniques to manage weeds.

4. The most significant outcome of the project

The most significant outcome of the Healthy Soil for Healthy Farms project was an increase in the knowledge of farmers of the current best practice for regenerative soil health management and practical soil health testing and result interpretation.

5. Unexpected outcomes of the project

- The enthusiasm of farmers, especially in the western district, to find new ways to manage their farms to increase the resilience of their businesses in light of the challenges that climate change is presenting them (particularly the farmers a the Mossgiel workshop, who were very interested in furthering their knowledge and training in Holistic Management and Grazing for Profit).
- The logisitic challenges posed by the geographic spread of the workshops. Future projects might benefit from a more localised approach where training is tailored to specific needs.
- The low attendance, compared to the expected numbers outlined in the Project Implementation Plan. We think this was due to farmers in general feeling "time poor" as well as specific conflicts with farm commitments during the late-winter/early-spring period.
- The benefits of the role-play teaching methods and using a grass roots style of education.
- The benefits of direct phone contact to engage farmers, as against asking for EOI replies to Facebook, newsprint, radio, or newsletter networks.

- The cost effectiveness of editorials in local newspapers who are often looking for articles as against paid advertising.

Workshop Photographs

	Some low pH soil from a range of depths in this soil profile. Many strategies were discussed for management of low pH soils including land use, grazing management, cropping opportunities, pasture selection and use of well managed test strips to assess lime application in conjunction with knowledgeable soil test analysis.
	David Hardwick's casual, engaging workshop style suits all ages and abilities. Many participants claimed it was the best and most educational workshop they have ever attended.

	Workshop participants were split into groups to study different aspects of the soil profile to encourage a thorough understanding of their most valuable resource.
	The importance of soil biological activity was one of the key topics. Plant health is critical to a healthy soil as root exudate feeds the microbes, which in turn feed the crop. A win-win situation

	Tullibigeal workshop host farmer Darryl Newham shaking a mixture of 1 part soil and 5 parts distilled water in order to take a measurement of his soil's pH and electrical conductivity. Field tests like this are easy to perform and can give you a wealth of information on how your soil is responding to new management strategies.