



Methodology & Methods

Supplementary Information:
The 8 families group case study.

2022

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We acknowledge that the contents of this document do not necessarily reflect the views of these contributors.

About Soils for Life case studies

For more than a decade, Soils for Life has been producing case studies of farmers' inspiring stories of transition to regenerating their soils and landscapes. It is the largest body of regenerative farming case studies in Australia.

Each Soils for Life case study is an interwoven story supported by evidence about innovative, ecologically-informed land management. The case studies are holistic, documenting ecological, social and economic factors and change, with a strong focus on peer-to-peer support.

The case studies have been used by farmers, researchers and policy makers around the country to inspire and inform new ideas and approaches in agriculture.

About Soils for Life

Soils for Life is an independent, not-for-profit organisation that works across Australia to support Australian farmers in regenerating soil and landscapes, to build natural and social capital, and transform food and fibre systems.

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Contents

Introduction	1
Methodology	2
Collaborative action research.....	2
Action research.....	2
Collaborative approach.....	3
Methods	6
Multi-method case study: <i>foundational</i> methods.....	6
Workshops and interviews.....	6
Virtual field walk.....	8
Multi-method case study: <i>disciplinary</i> methods.....	8
Social inquiry.....	8
Economic inquiry.....	9
Production and ecological inquiry.....	10
Conclusion	12
References	13

Introduction

This document outlines Soils for Life’s research methodology, as well as the methods that we have used in building the 8 families group case study. It is intended for those who have read one of the 8 families case study reports (see [Working Together to Regenerate Landscapes: A case study of the 8 families group](#), and the supplementary information documents, [Social Inquiry](#); [Economic Inquiry](#); and [Production and Ecological Inquiry](#)) and would like further explanation of the case study research process. It adds detail to the reports’ methodology and methods sections.

We use the term *methodology* to refer to a ‘contextual framework’ (Grierson & Bearley 2009, p.5) or ‘logical scheme’ (Kara 2015, p. 4) that informs the research project, including our choice of methods.

‘... methodology is the “how” of research, the organising system through which researchers make use and sense of data and ideas, engage critically with theories and literature, reflect on material practices and actions, ask questions and seek answers to weave research in a cohesive and systematic way.’ (Grierson & Bearley 2009, p.5)

A methodology will often reveal the researcher’s philosophical approach to knowledge and a subject matter (Grierson & Bearley 2009, p.5). For example, our methodology is informed by an approach to knowledge that values and seeks to bring together diverse forms of knowledge (i.e. farmers ‘local knowledge’ and the knowledge of different experts).

We use the term *method* to describe the specific types of data collection that we have used within our methodology.

We will continue to review and refine our methodology over the course of new case studies, with the aim of building a future document which will outline Soils for Life’s broader methodology. We will also continue to situate this methodology amongst other academic scholarship in the areas of transdisciplinary, collaborative and participant action research.

Methodology

Soils for Life's **Collaborative Action Research** methodology recognises and seeks to bring together the knowledge of both farmers (called local knowledge) and researchers (called technical knowledge) to inform the research process, exploration of issues and direction of activities.

Collaborative action research

The term *research* often conjures up images of a highly theoretical and technical activity, usually by a specialist researcher from a particular discipline. This is actually a very recent way of understanding the world, often called **technical or scientific knowledge**. In contrast, agricultural enterprises are usually seen as intensely practical, and farmers as practitioners or doers. Yet all that we knew about agriculture up until the scientific revolution was developed through trial and error by farmers who then shared that knowledge with others. This knowledge is currently called **local knowledge**. Here at Soils for Life, we are keen to value traditional and local knowledge. We see farmers as researchers in their own right: constantly undergoing practical experimentation based on their own theories of how things have worked; monitoring what happened in response to their experimentation and then trying something different.

For the 8 families case study, we worked with Dr Craig Ashhurst to develop a **collaborative action research** model. We describe the model and process below. In short, collaborative action research is a way of researching that brings local and technical knowledge together and involves a process by which activities are often informed by learnings produced through collaboration. Collaborative action research has its origins in pedagogy, as a mode of researching that aims to improve upon teaching practice through collaboration (see for example Messiou 2019). Collaborative action research can be understood as a process of sharing problems and insights and engaging in collaborative enquiry with the aim of improving upon practice (Humes 2014 in Lofthouse et al. 2016, p. 520). The process also shares some methodological grounding with transdisciplinary participatory action research (see for example Masson et al. 2021).

Action research

Action research is a label that applies to a number of approaches to researching that draw on knowledge from both theory and practice in a cyclical process (see Figure 1). Many landholders use this form of research informally and intuitively as part of understanding how their management impacts their land and production. All of the interviewed members of 8 families described using some form of action research on their own land without necessarily applying the label.

They often began their stories with how they reflected on issues that had arisen from previous farming practices or experiences (position '1' in Figure 1).

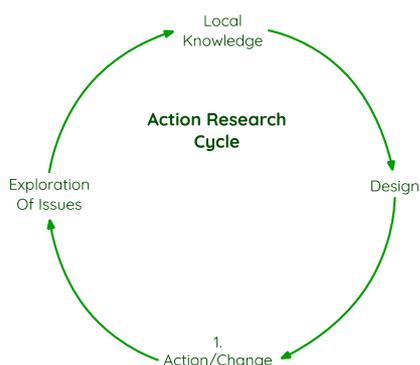


Figure 1: Action research cycle



Figure 2: Soils for Life action research cycle

Then, to support their exploration, they drew on experience, insights and theory from other members of the 8 families. They sought knowledge and wisdom through participation in many joint activities. All of this information was then combined to design changes to make on their land and farming practices. This cyclical approach of reflection, exploration, drawing on external knowledge, and design has become a natural practice for the 8 families group. It results in ongoing change and sometimes a total transformation in thinking and how the land is managed.

In setting up the group case study, Soils for Life sought to build on this foundation of substantial action research already conducted. The 8 families approach also aligned with much of the research conducted by Soils for Life but with a few differences. The cycle in Figure 2 now begins at the top, with '1. Disciplinary Knowledge'. This more formal academic knowledge provides a foundation for the work of Soils for Life and informs the design of the various research activities it conducts.

In the case of Soils for Life, the team is made up of experts from diverse disciplines and industries, including ecologists, agroecologists, social scientists, economists, as well as communications specialists. Therefore, the disciplinary knowledge and fields of inquiry are multiple.

Similar to the 8 families' approach, the design leads to specific actions. The results of the research activities lead to changes in practices, but in this case also include specific outputs and outcomes. Outputs include things like reports, podcasts and other forms of documented learnings. The outcomes are the less tangible, but equally important, such as changes in the networks and relationships of the broader community connected to Soils for Life. These changes then feed back into the exploration of current issues, and the cycle goes around again.

For the group case study, the 8 families and Soils for Life groups joined at certain points, adding an additional collaborative element to their independent research activities.

Collaborative approach

The group case study research approach can be considered collaborative in the way Soils for Life and the 8 families came together in partnership. In practice, this partnership ranged from close collaboration to work carried out quite independently from each other. Each group also ranged in how they collaborated internally. The 8 families have always met together regularly, supporting each other in their learning. Soils for Life team members also regularly collaborate, combining their expertise as required. This combined approach is shown in Figure 3.

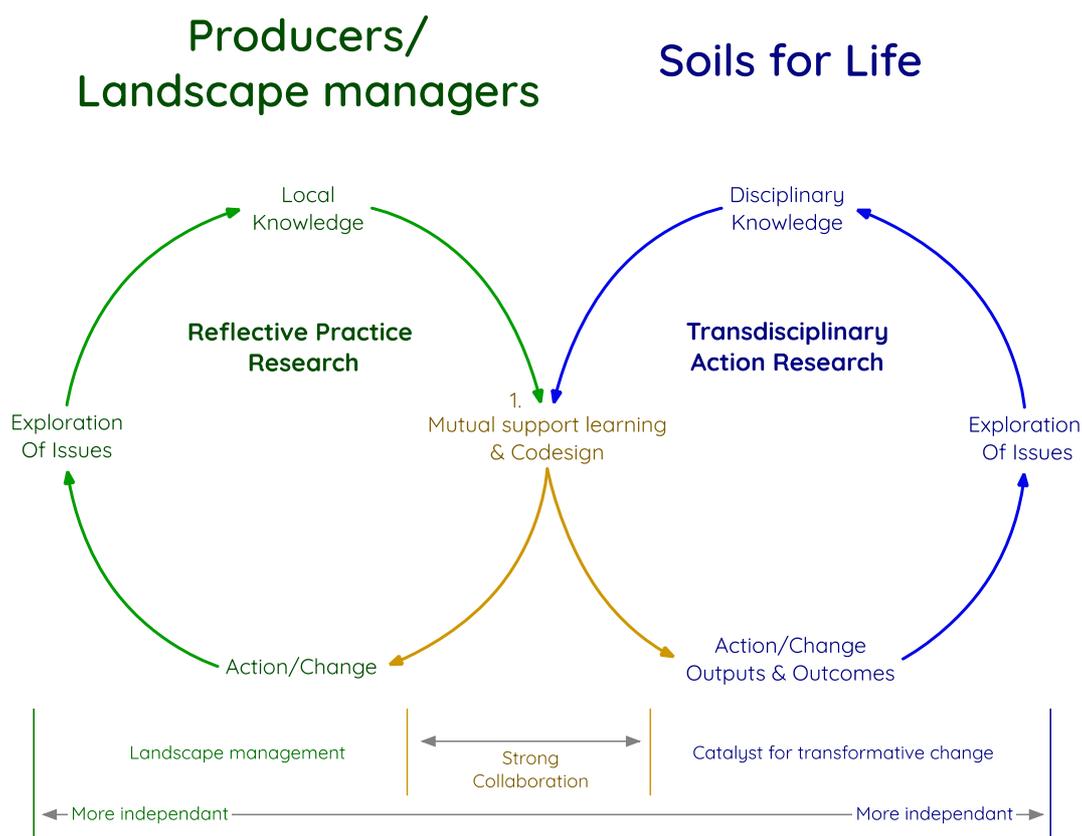


Figure 3: Complementary action research cycles

The type of collaboration is presented at the bottom of the diagram of Figure 3. The combining of the two cycles of research is highlighted by the two differently coloured circles being joined in the centre of the diagram. This becomes the new starting point '1', the mutual support, learning and codesign stage. This stage includes the multiple interactions between the members of the 8 families and the Soils for Life team. Each collaborative activity allowed members from each group to influence each other in support of their own goals.

The collaborative interactions created new and more refined ideas than existed previously, resulting in changes to the original objectives and goals of the project. Two examples include the creation of four themes (holistic approach, land stewardship, peer support) and the development of a stewardship workshop; both are described below.

Example one: emerging themes

From an early scoping meeting involving Soils for Life and the 8 families, the Soils for Life team adapted their research focus based on three emerging themes – a holistic approach, land stewardship, and peer support, and later a fourth theme - shift in worldview. Later workshops and individual interviews supported and developed these themes. The development of the themes is shown in Table 1.

Table 1: Themes arising from the workshops and interviews

Original themes	Refined themes
	Change of Worldview and mindset
Land stewardship	Land stewardship
A holistic approach	A holistic approach
Peer support	Community of Practice

Example two: development of a stewardship workshop

The second workshop involving the 8 families and Soils for Life brought to light issues and questions surrounding land stewardship incentive programs (e.g. carbon credits, biodiversity offsets). The 8 families had questions and concerns about the programs and articulated an interest in learning more about their options as a group. In response, Soils for Life facilitated a workshop between the 8 families and a range of specialists, including policy experts, carbon aggregators, natural capital accounting programs and others. We turned the usual process on its head. Rather than producers coming to hear specialists present their programs and expertise, the workshop was an opportunity for the 8 families to present their particular vision, concerns, obstacles and experiences to the specialists, and to discuss issues and questions around potential stewardship schemes to suit their regenerative agricultural approach. The 8 families are now engaged with a carbon aggregator to help realise their vision.

Soils for Life also had the opportunity to reflect on the questions that had led to the workshop as well as the learnings from the workshop. Soils for Life's outputs have included, the publication of a blog [Navigating Land Stewardship Incentive Programs](#) and a podcast [The Great Soil Carbon Catalyst?](#) The podcast explores the specific area of soil carbon markets and opportunities and enabled Soils for Life to expand its network and to present ideas around how emerging markets for soil carbon could support farmers to regenerate soils.

Methods

The methods we used in this case study were designed to align with the methodology described above. We have broken up these methods into *foundational* methods and *disciplinary* methods. The foundational methods refer mostly to the activities conducted during the mutual support learning and codesign stage of the action research process. They also fed into and crossed the multiple disciplinary fields of inquiry.

Multi-method case study: *foundational* methods

Many of the foundational methods were dialogic, that is, they were structured to encourage open and productive conversations that bring insights to the surface that may not have been made explicit previously. The activities included the following:

- **Three Workshops:** the first to co-design the case study; the second to establish the group story and timeline; and the third focused on environmental stewardship (see Workshop and interview subsection below for more details);
- **Interview** (1.5 hours): with four focus farmers, which integrated the following: an oral history approach; four chronological phases; themes arising from workshops (land stewardship, holistic approach, peer support); and the trigger, action, outcome process described below in *Workshop and interview* subsection;
- **Virtual Field Walk:** farmers chose key locations to talk about significant management decisions and illustrate themes that had arisen from workshops.

Each member was given a participant information and consent document and consented to being a part of the case study.

Workshops and interviews

We conducted three different interactive workshops. In the first, we talked through what should be in the case study project and how we should do it. The second was focused on understanding the story of the group. We worked together to write a group timeline and explore what might be some key themes. In the final workshop, the group had an opportunity to present their questions and concerns about environmental stewardship programs and to learn from experts, and they worked on opportunities for having the group's stewardship recognised and rewarded. We made an audio recording of each workshop and took photographs of relevant workshop activities.

Based on these workshops, the Soils for Life team developed three themes: land stewardship; holistic approach; and peer support. Previous work by Soils for Life had shown that as people undergo the process of changing practices, they experience a 'trigger', which leads them to undertake a new 'activity', which has some 'outcomes'. These themes and shared experiences were incorporated into the interview process.

After the second workshop, all members were asked if they were willing to be interviewed, and all agreed. As it wasn't possible to interview everyone, four 'focus farmers' were chosen by the Soils for Life team based on a number of factors including: relevance of their property and approach to the agreed themes; and availability of other relevant data.

Due to the COVID-19 pandemic, we conducted and recorded the interviews using Zoom. All interviews were conducted by a Soils for Life social researcher, who facilitated open and informal conversations based around a small number of key topics. In these conversations, people were encouraged to share anecdotes and to raise topics of importance to them, with the researcher following up and introducing topics of interest to Soils for Life. This approach is based on taking an oral history (Veale & Shilling, 2004).

At each interview, the researcher asked them to recall their regenerative agriculture journey through four chronological phases: the original enterprise; the first stage of practice changes; the second stage of practice changes; and now and the future (outlined below in Table 2). Soils for Life staff had decided on these phases based on many previous case studies. The specific timing of these phases was jointly determined for each participant during each interview. Based on information from the workshops and interviews, the researcher developed 'chronologies of change' for each person and for the group. These outlined progress through the four phases.

Table 2. Chronologies of change

<p>Phase 1: the original enterprise;</p>	<p>Phase 2: the first stage of practice changes;</p>	<p>Phase 3: the second stage of practice changes;</p>	<p>Phase 4: and now and the future.</p>
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In addition, the researcher used the themes and the shared experiences to tell stories of the progress of change for each individual and for the group. We adopted an analytical model to help us to make sense of the rich and complex information gathered during the research and to help understand the transformation process of the 8 families. Each family had their own story and when these were woven together they created a multilayered narrative of how a community has worked together to regenerate their land, sharing their hardships and successes. We have called this model the *Key Narratives of Transformation* and it provides an easy-to-follow framework for conceptualising the 'pathways to change' or 'narratives of agricultural transformation'. The model draws on the work of a number of researchers from different disciplines (Clarke, 2016; Klein, 2013). It has four elements:

1. **Key Theme:** These themes were uncovered during the early workshops and validated by individuals during interviews.
2. **Trigger:** In each theme incidents, ideas and events were identified that provoked a start to change.
3. **Activity:** This element describes the actions taken by the land managers to support their goals for change.

4. **Outcome:** Each narrative is concluded by noting the results of the actions taken. These outcomes were not always positive but were consistently used to plan future change.

Virtual field walk

The purpose of the field walk was to link the physical landscape to an exploration of the lived experience of the landholder (and family) including the production system, ecological landscape and decision-making processes. Originally, the field walk protocol was designed to be undertaken by Soils for Life team. However, due to the COVID-19 pandemic, the four focus farmers, aided by one member, recorded short videos of themselves on their property. The Soils for Life team asked the four members to first create an introductory video and then to choose approximately four locations that would allow the member to explore key themes and questions that had arisen through the workshops and interviews.

Multi-method case study: *disciplinary methods*

Soils for Life experts built upon the research process and foundational methods explained above in order to: add to the collaborative process and farmers' observations (including observations of landscape, ecosystem, personal and economic changes; and to gather data specific to disciplinary knowledge and fields of inquiry. Farmers voluntarily contributed farm records, including financial, soil monitoring, time-scale photos of fields, and grazing records to help this process.

Below is an outline of the methods grouped into the disciplinary fields of inquiry: social inquiry, economic inquiry, and production and ecological inquiry.

Social inquiry

The social inquiry was informed by the workshops, interviews and virtual field walks and surveys described below. These methods enabled us to explore the function and value of the group and peer learning, as well as the group and individual (focus farmer) narratives of change.

We asked all of the nine families to complete a wellbeing survey. Firstly, to contextualise and frame the wellbeing survey, we determined the details of the chronological phases in collaboration with members. We then provided a written summary of the years and key moments of these four phases to members for feedback, and members then responded to the survey questions with these chronological phases in mind.

The wellbeing survey involved two short sets of 'closed' questions and indicators.

The first set of questions was the widely used Personal Wellbeing Index 11 (Australian Centre on Quality of Life, 2020). The personal wellbeing indicators are also used in the long term broadscale Regional Wellbeing Survey conducted by the University of Canberra (2020), and used by researchers (Schirmer, Yabsley, Mylek, & Peel, 2016). These wellbeing indicators are considered as important for inclusion in measuring the sustainability of farming systems (Brown et al., 2021).

For each question members were asked to remember how they were feeling at each of the four phases on a scale of one (extremely unsatisfied) to ten (extremely satisfied) in terms of:

- Achievements in life;
- Feeling part of a community;
- Global life satisfaction;
- Standard of living, health;
- Personal relationships;
- How safe they felt;
- Future security.

As previous research found significant difference in regenerative farmers relationship to farming as compared to conventional farmers (Brown et al 2017), the second set of questions explores farmers' relationship to farming. This second set aims to uncover a farmers' sense of resilience, optimism and self-efficacy (a person's belief that they can perform the actions needed to achieve desired outcomes).

For each question, members were asked to remember how they were feeling at each phase on a scale of one (strongly disagree) to seven (strongly agree) in terms of their:

- Ability to cope with most difficult conditions on the farm;
- Ability to achieve the things I/we want on our farm;
- Ability to make the right decisions about farm management;
- Optimism about my/our farming future.

We used three conceptual frameworks to guide our analysis of the rich data coming out of these methods: 5 Landscape Functions - the socio-human function (Massy 2017); Key Narratives of Transformation (outlined above in the methodology section); and Communities of Practice. These conceptual frameworks are detailed in the [Social Inquiry: Supplementary Information](#) for the 8 families case study.

Economic inquiry

Soils for Life engaged Vanguard Business Services to undertake a financial analysis of three of the four focus farmers. The core interviews (described above) with three of the four focus farmers formed a backdrop to this financial analysis. Vanguard's analysis used historical financial records provided by the farmers, including a combination of their own and accountants' information and compared it to published data to evaluate their economic performance. Vanguard also interviewed each of the three farmers. In addition, the three members completed the Vanguard Business Services *On Track Goal Indicators* survey to ascertain owners' goals. The survey has been used by Vanguard with farm families over a 20-year period. Decision makers are asked to nominate their top five goal statements from a list of 24 statements (see Table 3 below) related to profitability, social and environmental aspects. Participants are then asked to rank these in descending order of priority. This information provides a context for discussion of key business metrics indicating how the business has performed in relation to the owners' goals. This approach informs an evaluation of business performance from the perspective of the owner's priorities, taking a whole of farm business perspective.

Table 3. On Track Goal Indicators priority areas

Maximum income Satisfactory income Keeping out of debt Safeguarding income Gaining recognition Family tradition Being own boss Children in worthwhile occupations Farm in the family Working with family members Pride of land ownership Self respect	Good crops, pastures, and stock Farm as a business Important to the community Farm in good/better condition Improving biodiversity Special abilities and aptitudes Meeting a challenge Enjoyment of work Making farm productive Healthy outdoor life Working hard Independence
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The economic inquiry was framed through a series of key questions. These questions were used to then analyse essential information on the performance of the overall farm business over time. These questions are listed below in Table 4 along with the relevant information that members provided.

Table 4. Key analytical questions

Key Question:	Information provided:
What are the owners' goals, including financial?	<ul style="list-style-type: none"> • Owners' context for Farm Profit and relative priority from Goal statements.
What is the Farm Profit over time?	<ul style="list-style-type: none"> • Whole Farm profit focussing on EBIT as the key metric. • In how many years does the business achieve the owners profit target (% of total years)?
What is the variability in achieving farm profit?	<ul style="list-style-type: none"> • Profit of the farm profit (EBIT variability and characteristics)
What is the relative profitability?	<ul style="list-style-type: none"> • Return on capital

Production and ecological inquiry

To support the production and ecological outcomes of the group, a deeper dive into four focus farmers was undertaken to better understand their decision-making processes, practice innovations and outcomes. Acknowledging the value of both farmer knowledge and specialist knowledge (as outlined in the Methodology section of this document), we drew upon information from the group workshops, interviews, and virtual field walks. For each of the focus farmers, we assessed data across their chronological timeline incorporating the periods pre- and post-practice innovation and change (see Methodology section above).

Given the complexity of the social ecological systems the 8 families are operating within, we have used an analytical framework to help structure and facilitate the discussion of the available data. This framework incorporates five-landscape dynamics which underpin landscape function; the solar energy cycle, water cycle, nutrient cycle, community dynamics (biodiversity) and the human/social dimension. The first four were derived from Holistic Management (Savory & Butterfield, 2016) and the fifth identified by Charles Massy (2017). While the production and ecological inquiry did not directly comment on the human social dynamic, it is implicit within each of the other functions. These four cycles are used as they have also been analysed as part of the Ecological Outcome Verification™ monitoring. In addition, these four cycles offer accessible, relatable and simple concepts when interpreting a range of data, and for which key measurement and assessment indicators can be chosen to describe and assess ecological system health and function.

Soils for Life ecologists worked with LandSat data (satellite imagery) managed by VegMachine® to provide some analysis of how members' properties appeared compared to surrounding areas. The four focus properties provided GIS polygons. Using VegMachine® (CSIRO, 2016), we compared groundcover and greenness since 2010 between members' properties and a 5km radius around each. We also assessed the data across a chronological timeline incorporating the periods pre- and post-practice innovation and change.

We also extracted rainfall data for the property if available from the producer or from a Bureau of Meteorology weather station within 5 km of the property. We then linked groundcover data from members' properties and a 5 km radius with rainfall to generate figures attempting to show whether members' properties performed better, including during periods of low rainfall and drought. We plotted the mean % groundcover for the property and the buffer with the rainfall since 2010 on the same graph. We note, however, there are limitations to solely using spatial data as it cannot represent holistically the overall health of an ecosystem.

Other forms of data collection

We have drawn on background information that we requested from members, including information about themselves, their enterprises and their landscape. We received numerous materials in response, including: property and soil maps; soil test results; and records of stocking rate, hydrology and finances. We also viewed agendas, meeting minutes and strategic documents from the 8 families group.

We also asked members about their monitoring and testing practices and to contribute their monitoring data. For example, we asked members to contribute data from any biological monitoring that had been done on their properties. Mundarlo (Austin), Willowlee (Gooden) and Yabtree West (Gorman) provided Ecological Outcome Verification™ (EOV) reports from the Land to Market group to which they belong. The Austin's had also done Biological Monitoring from 2016-2020 on one paddock. These reports provide a useful benchmark which will become more valuable when repeated regularly to show evidence of change over time.

Members reported soil improvements and provided soil data that they had accumulated. These data included conventional soil chemical and microbial testing for Willowlee (Gooden) and soil chemical tests for Mundarlo (Austin). At Willowlee, the microbial tests were done in 2020, with the chemical tests done in 2008 on four paddocks, then again in 2020 on four different paddocks. As there were no repeat tests on the same paddock, assessing change over time was not possible.

Conclusion

We have drawn upon a **collaborative action research** process in developing our research plan for the 8 families group case study.

At the core of this methodology is an appreciation of the research process and knowledge of the farmers whom which we work with. While the farmers and Soils for Life each have independent research goals and processes, there are moments of collaboration which lead to key outputs and outcomes.

We have identified and used three foundational methods (workshops, interviews, virtual tours), which have proven to be interdisciplinary because they elicit diverse forms of data that can be used by experts across disciplines. Soils for Life experts have also developed further methods based on their disciplinary knowledge and field of inquiry, as well as available data and arising themes from the foundational methods.

We will continue to refine this research approach as we engage more farmers and undertake further case studies. We welcome your input.

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