

The value of soil care: changing approaches to soil management

Insights from Farming for Sustainable Soils Project participants in the Wycheproof, Glenloth East and Charlton areas of north central Victoria



Sharing the benefits of soil health

Between 2011 and 2014, Melanie Watts was the Community Facilitator for the Charlton Farming for Sustainable Soils (FSS) Group - at the same time as having and raising her children, supporting her husband in his earthmoving business and running their own small farm together. Mel has a background in environmental science and natural resource management and has been part of the Charlton farming community since she moved to the area in 2005. Over the years, through her involvement

in the local community and the FSS Project, Mel has witnessed other landholders change their approaches to soil management as well as start her own journey towards improving soil health.

There's generally mixed farming enterprises in the Charlton district, with predominantly grain and sheep - all dry land farms, with no irrigation. Mel explains that the farming community is "an ageing group of farmers - luckily the new generation is coming through and they're starting to challenge the way that farming is happening, trying new things and open to change".



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The Farming for Sustainable Soils Project is funded by the Australian Government's National Landcare Program and delivered by the North Central Catchment Management Authority in collaboration with local farming communities.

As a relatively new farmer and member of the younger generation, Mel brings an open and enthusiastic approach to learning about soil health and encouraging practice change within her local area:

“I wanted to share the benefits of the Project with everyone around me and get together as a community and tackle some of these issues. [...] I wanted to learn more about soil health for my own reason as well as for the benefit of everyone else - soil is so important, no matter where you are.”

“It’s been a good opportunity being involved in this Project, being new farmers. Now we get to have a positive impact on our piece of land and hopefully encourage those close to us to do the same.”



Melanie Watts, Community Facilitator for the Charlton Farming for Sustainable Soils Group

One of the biggest challenges for farmers in the area is variation in soil types: “in the Charlton area we have different soil types from red clays to very nice black soil which doesn’t require much conditioning - different soil types can even be within the same paddock”. This presents a range of challenges for farmers, and the FSS Project helped to discover some the reasons behind poor soil quality in parts of the region:

“Going into the Project I thought the soil was poor quality, but what I found through the Project is that soil structure is actually our biggest issue - opening up the soil structure and making it accessible to the plants is the biggest challenge. It’s not what you put on the soil it’s how you manage the soil. By the end of the project we were seeing people trialling that on their properties.”

The focus of the Charlton FSS Group became centred on understanding and trialling various approaches to improving soil structure - “how to access the good soil that was hidden beneath

the compacted layer”. Mel explains that “we went back to basics and started ripping the soils, [to] get that soil structure back so that the plants and the soils can start working together”.

Mel reflects on the ways that the FSS Project helped farmers in her Group to challenge their approaches to soil management:

“When farmers are challenged with poor soil health - chemistry or structure - they are putting high inputs into the ground. Often they’re doing things they don’t want to - like spraying and ameliorants. Everything they add is cost and time. We’re trying to go back and say that you don’t always have to go back to what you’ve been taught. We can challenge that and try something different. Often the best solution is a low cost solution - ripping, breaking up the soil, fracturing it is a benefit financially for the farmer and is also building up the soil.”

The FSS approach to soil management

As Mel explains, there were three main components of the FSS Project, designed to encourage farmers to change their approaches to soil management:

“The first [component] was that we wanted to know more about our soils - that was soil testing and soil assessments, not just looking at the soil chemistry, which a lot of farmers had done before but getting into the soil and digging soil pits and really looking at the soil profile. The second part was the knowledge and capacity building - bringing in the experts, the soil scientists and some agronomists. We wanted to bring it back to focus on the soil - if you get the soil right, the plants will do their thing. The third thing was doing trials and demonstrations.”



Entomologist, Neil Hives, conducting a field demonstration



The Pyramid Hill FSS Group on a field day

Various consultants and scientists were engaged to provide their expertise to help farmers understand their soil limitations and opportunities. Trials and demonstrations were supported by funding, and monitoring and analysis of results was undertaken.

“Some farmers didn’t even know what their soil issues were before this project - it was slow. First year about getting to know each other and getting to know our soil. From there it was about doing [trials].”

Mel explains that the FSS Project was a hands-on approach to improving soil health:

“[Farmers] like to hold a piece of dirt in their hands and rub it in their fingers - that’s what we encouraged them to do [...] We had soils expert come along and we’d be rolling balls of clay and see if it stayed together or if it would crumble - doing some simple tests [...] making them feel like it was something they could do every day.”

Three main trials were conducted by the Charlton Group - including testing the use of a disc seeder in the first year, which “revealed that there is no point for most of the farmers in going out and buying a disc seeder [...] they need to get their soil structure right first”.

In the second year “we trialled different soil ameliorants, deep ripping and also some deep manuring and that probably gave the best

response from farms”. In the third year, an integrated pest management demonstration was also undertaken - with entomologist Neil Hives teaching farmers to recognise and encourage beneficial insect species to improve soil health.

Results that speak for themselves

Mel explains that “farmers are still observing the changes” as a result of the trials undertaken through the FSS Project. “We went back and retested the soil to see what the changes as over the two years - that was very valuable. The farmers were especially interested in the trial results.”

The FSS Project has had ongoing benefits for those involved, the wider community and Mel’s own personal journey with soil health:

“Some of my group members still go to other group meetings - they’ve got a fire in their belly and want to continue doing it.”

“As a facilitator, I was the link between the CMA and the farmers of the Charlton area who wanted to be part of the group [...] I was not an expert in soil, but I feel like now I have a grasp on it and got a bit more of a grasp of farming and I learned as much from the farmers as I think they learned from me and the experts we got in to talk to them.”

Healthy soils and productive agriculture

“There’s a strong link between soil health and productivity.” (Christian Bannan, soils scientist)

“It’s all linked up - soil health, business productivity and trying to stay viable. At the end of the day if you haven’t got your soil health there you’re not going to have the production to drive the business.” (Robert Elder, farmer and participant in the Glenloth East FSS Group)

Robert Elder is fifth generation farmer in the Glenloth East area. His farm near the Avoca River is a mixed farming enterprise, including sheep, cropping and a piggery. Rob generally has heavier soil types on his property, distinctive of the river floodplain, which poses certain challenges: “production is tough in dry years if you haven’t got subsoil moisture, then you get the wet year and the floods come through”.



Robert Elder

Christian Bannan is a soils scientist who has been involved in the FSS Project since 2010. He undertook soil testing demonstrations for the Glenloth East FSS Group (including on Robert’s property) and encapsulates the challenges faced by farmers in the area:

“Soils in optimal conditions - that is, soil physics, structure and chemistry - they perform better, and have higher productivity. That is particularly the case in drier environments where there’s not much excess water. North central Victoria is certainly one of those drier, more challenging environments.”

Robert explains how his involvement in the FSS Project helped him to understand the relationship between the condition of his soils and agricultural production, and gave him the opportunity to try new approaches to soil management:

“The moisture holding capacity [means that we’re] not getting a great deal of production. What we’re really trying to do is lift the organic content of the soil, the long-term plan of what we’re trying to do. That’s where it’s been interesting with the soils Group - the different approaches we could be using.”

Robert had two soil pits dug on his property. One was on a paddock that had always had limited production. The soil pit revealed that the “limiting factor was pretty much the clay profile - we weren’t getting the root penetration, so it was interesting digging the pit to see how far the roots had gone down on that tougher bit”. On the other paddock, “it was a bit more loamy and we saw once again how far the roots could



potentially penetrate - but as it turned out, fertility was probably the biggest issue about why we weren't getting production".

Rob summarises the ongoing goals for himself and others in the region following on from the FSS Project:

"What we're all striving to do is to hopefully improve soil health and organic matter, and soil carbon levels and retain cover."

Trialling new techniques and approaches

On Gary Pollard's farm south of Wycheproof, he's "got nearly every soil type you can think of - from sandy loam, to loam, to red self-setting clays, to some good black self-mulching clay". His property is just over 7000 acres - he crops 5000 acres each year with vetch, wheat, barley, and some canola, and also runs a couple of thousand self-replacing merino sheep. Gary explains that "the biggest soil constraint we've got is a limestone [zone] which is about 400-500 millimetres down - it limits the root growth and subsoil moisture".



Gary Pollard, farmer and participant in the Wycheproof FSS Group

Gary describes how the FSS Project has helped him understand his soils:

"If it wasn't for the soils Group, we wouldn't have known about our soil constraints. We had Christian Bannan come up and dig soil pits and taught us all about our soil constraints and the hard pan, which is actually top soil that's gone down."





Weather station and moisture probe

Following on from learning about his soil chemistry and soil profile, the FSS Project has enabled Gary to try new soil management techniques, for example:

“We’re actually sowing a fraction deeper in certain paddocks when we sow the crops - just to try to break up the hard pan, to try to get a deeper top soil. We’re playing around with different liquids and trace elements to promote root development on the crops to get earlier vigour.”

While it’s still “early days” for major improvements in soil health, Gary explains that the new approaches to soil management he’s learned through the FSS Project have “made the crops get up and going quicker [...] We’re getting better root development - there’s more organic matter and root fibres down into the soil, so it’s got to be improving”.

The FSS Project challenged Gary to think differently about soil health, try new approaches and get together with the Group to share their experiences:

“It’s made me try with that soil constraint that we didn’t know we had. There’s no point putting on more and more fertiliser ‘cause it’s not going to get to the crop if you haven’t got the moisture - that’s one thing it really has woken up.”

“It’s been really good because everyone has been prepared to share the outcomes of what they’ve learned, and every three months it’s great to get together as a group.”

Ongoing benefits - managing soils for the future

For those involved, the benefits of the FSS Project for soil health are ongoing. Both Robert and Gary will continue to improve the ways they manage their soils in the dry and variable conditions of north central Victoria. And, following her involvement in the Project, Mel has undertaken a range of measures on her farm based on what she’s learned. She’s also doing her best to ensure that the soil is left in good hands for future generations:

“We want to encourage the good bugs to stay, we want to encourage wildlife and prevent erosion, keep ground cover, we don’t want to degrade our soils - lots of erosion work, weed management and pest animal control. We’re doing things differently.”

“The most rewarding thing for me being involved in the Farming for Sustainable Soils Project is that now I feel comfortable being on the farm [...] Now I feel like I can be more hands on. The kids come out with me and I teach them things.”



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