

Plants and soil health

Understanding the link between plants and soil health through the Farming for Sustainable Soils Project

Plants and soil health are intrinsically linked, and the Farming for Sustainable Soils (FSS) Project helps farmers to understand this relationship. Soils expert Doris Bleasing explains that FSS Project content is focused on getting farmers to understand “why they should care about soils to grow more crops”. She says that the Project involves “helping farmers to understand how plants grow, and from there we can start thinking about how soils are involved in that”.

Farming communities participating in the FSS Project between 2013 and 2018 explored many aspects of the relationship between plants and soil health, including the benefits of groundcover, and using plants to improve the structure and nutrient composition of the soils.



Maintaining groundcover

For farming consultant San Jolly, maintaining groundcover is the key priority for farmers in improving the health of their soils:

“For me, the biggest issue is maintaining groundcover over summer and autumn [...]

If you don’t have any groundcover, or if you only have minimal groundcover when the season breaks, a lot of that moisture runs off and it’s lost to plant growth. I think we have to emphasise the value of that groundcover.” (San Jolly, farming consultant)

Groundcover can include both living and dead plant material on the surface of the soil. Maximising groundcover can mean that soils are less susceptible to degradation caused by wind and water erosion - and, importantly, it increases organic matter which is beneficial for plant growth:

“The more leaf area that you leave behind, the greater the photosynthetic capability of the plant, and the faster the pasture will grow [...] It’s not just about preventing soil erosion. From my perspective of trying to maximise biomatter production - and maintaining ground cover is a key driver for doing that.” (San Jolly, farming consultant)

After participating in the FSS Project, one farmer reflected: “We need to keep the soil covered at all times - to prevent erosion and grow better crops... it’s better for soil structure and soil biota”.



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Improving soil structure and nutrient composition

Through FSS Groups across north central Victoria, farmers have trialled a range of techniques using plants to improve the health of their soils. For example, farmer from the Timor West area, Mark Ipsen, explains that coming out of his learnings through the FSS Project he plans to trial companion cropping to improve both soil health and productivity:

“This coming season we plan to try some companion crops to see if we can improve our nitrogen situation.

[We’re] looking to see if we can feed crops with other crops to improve the nitrogen cycle. We plan on putting a legume in with a hay crop or with a grain crop to see if we can get them to work together to use less nitrogen fertiliser.”

Ash Moon, a farmer from the Pyramid Hill area, has also incorporated legumes into his cropping rotation, which has been a “big game changer”. Ash explains that through the FSS Project he has also trialled the use of tillage radish to “try to get some more organic matter into the soil and to open it up a bit”.

Up in the Wycheproof and Glenloth East area, Geoff Repper has trialled tillage radish as a groundcover and sheep feed that would grow on the diversity of soils on his property, as well as help to break up hard layers of subsoil after years of cultivation:



Tillage radish under barley

“Tillage radish is a remarkable crop [...] it was a real eye opener for us through the Project. We got so much out of it for the livestock. We’re going to continue on with it - keep on sowing small areas to see what happens. For us the main issue was the different soil types, trying to find a ground cover [that would grow on] all soil types.”