

# Grower case study — VG16068 Optimising cover cropping for the Australian vegetable industry

<b>Grower</b>	Darren Schreurs
<b>Location</b>	Devon Meadows, Victoria
<b>Planted area</b>	160 hectares – Leeks, cos lettuce, radicchio, wombok, kohlrabi

## What was the research about

Between June 2018 to June 2020, *VG16068 Optimising cover cropping for the Australian vegetable industry* (delivered by Applied Horticultural Research (AHR)) worked to increase knowledge of the performance of cover crops for Australian growers to improve soil health and crop productivity. The project initiated and maintained 14 field trials across Australia to understand how different types of cover crops affect soil health, including soil structure, diseases, weed and nutrition management impacts. The investment also delivered a range of supporting extension activities to engage growers, including field walks, webinars, guides and industry presentations.

Darren Schreurs, a second-generation vegetable grower from Devon Meadows in Victoria, talks about his experience incorporating cover cropping on his family run property and how the research completed through VG16068 continues to shape their practices.

## How did you learn about cover cropping?

“Through the late 1990’s and early 2000’s we were progressively increasing our spray program as we were struggling with pest resistance and we thought there had to be a better way. This was the catalyst for us becoming involved in the early phases of Integrated Pest Management to reduce our reliance on chemical pest management, which happened to be our first introduction to the importance of a wholistic farming system. We then started to introduce cover crops on our property as a more wholistic approach to building back our soil, just testing things out across growing cycles and between rotations. We haven’t looked back since.”

## What was your involvement in the Optimising Cover Cropping Program?

“As we were already somewhat involved in cover cropping practices, I was approached to participate on the Project Reference Group for the VG16068 project. This provided us with the opportunity to learn first hand about all of the project activities that were being delivered, including the trial sites and areas that were worth researching in more detail, like the activation of mycorrhizal fungi in soils. We also were able to review and provide input on the material that was being delivered for growers, including the [cover cropping guides](#).”



Our farm was also used as one of the 14 field trials where various cover cropping practices were examined – our trial was focused on whether cover crops could be used to prime mycorrhizal fungi and whether this would benefit our upcoming leek crop. The work done on our farm showed just how intricate all of the influences are, with more work definitely required to better shape our understanding to target specific types of cover crops for achieving specific results on farm.”

## How do you use cover cropping on your farm?

“We’ve learnt to adapt our cover crop depending on the time of year and the crops that we are planting. We will typically use cover crops during winter and spring between rotations as that’s when we would otherwise have the most bare

ground and we like to keep the soil covered wherever possible if we are not directly rotating crops between harvest.

We use a range of different species depending on the time of year and what we want to achieve – it can be used as both a short or long term strategy – so we don't really have one single cover crop. Now days, we generally use a mix of between 3-4 species so they don't out compete each other too much."

### What are the results and impacts you've experienced since introducing and refining cover cropping on your farm?

"Something that we've been able to see a direct change since cover cropping is higher levels of organic soil carbon. When we started out, about 0.8% of our soil measured as organic carbon, but this has now measured at up to 4.8%. This has supported improvements to the structure of the soil and its now more friable and easier to work with. The increased organic matter has also improved water retention, and we've seen reduced water run off and erosion which has been especially beneficial during the recent wet conditions.



Another thing that we've measured is our bacteria and fungi count using a microbial biomass and fungal test (microBIOMETER®). We've learnt that higher levels of fungi can have a range of benefits like improved nutrient uptake, soil aggregation and root pathogen protection. We generally measure a fungi count around 50% with bacteria making up the other 50%, however this has been measured as high as 79% fungi and 21% bacteria. We know that other growers have significantly lower share of fungi to bacteria, and is reassuring to connect the impact that cover cropping is having for us.

We've also noticed that the nutrient holding capacity of the soil has significantly increased, reducing nutrient input requirements. As a result, we have actually been able to halve our fertiliser inputs when growing leeks, which has been a huge win. Other input costs have also dropped dramatically as we are spending less time on the tractor. When we do drive it we can get around a lot quicker as the ground is easier to work on – this has reduced our fuel requirements and the wear and tear of our machinery. Overall its been a win-win for us."

### Have there been any challenges along the way?

"We've previously let cover crops to go to seed, and this created future issues through a higher seed load in field. We now make sure to use the roller crimper or pulverise the crop before this happens. It's also important to ensure that the cover crop is fully broken down before replanting, and we had some initial challenges around timing this. As the soil is now so fertile, this helps to quickly break down the organic matter so we can now be ready for planting after two weeks following two passes on the tractor. Snugs and snails can also be more of an issue when cover cropping. That's been about the extent of it for us."

### What does the future of cover cropping hold for your business?

"The soil is a living organism and having a cover crop is like putting a solar panel on a house. It brings that soil to life. We are constantly learning and changing the way we do things. Our main focus is to have our soil in a better condition tomorrow than it is today and cover cropping will continue to play an important part for us in achieving this."

*VG16068 Optimising cover cropping for the Australian vegetable industry was funded by Hort Innovation, using the vegetable research and development levy and contributions from the Australian Government. This case study was developed as part of MT21013 Fund Impact assessment 2020/21: Vegetables, Small Tropicals, funded by Hort Innovation, using research and development levies from the vegetable fund and contributions from the Australian Government.*

*Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture. For more information visit [www.horticulture.com.au](http://www.horticulture.com.au).*

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*Images credit: Darren Schreurs*