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

Grower	Deon Gibson
Location	Forth, Tasmania
Planted area	300 hectares – Carrots, Onions, Beetroot, Broccoli, Brussels Sprouts

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.

Deon Gibson, Farm Manager of a major Tasmanian vegetable grower from Forth in Tasmania, talks about how cover cropping has helped their growing operations stay productive and profitable despite several hurdles that would have potentially compromised their productive ability. Deon thinks of himself both an ongoing student and cover cropping expert which was supported through involvement in VG16068.

How did you learn about cover cropping project?

"We were already trialling cover cropping on our property, collaborating and sharing ideas with other local growers in our region after a label registration for the nematicide Nemacur® was removed for carrots. We were looking for an alternative approach to ensure that we could keep on top of nematodes and we were aware of some growers having good success with biofumigation through cover cropping techniques.

After a number of seasons, VG16068 project leader Kelvin reached out to us to understand more about what we were doing and he explained more about the research that he was planning to further refine cover cropping techniques and performance measures. By this stage we were already starting to observe benefits through cover cropping not only from biofumigation, but also through reduced soil compaction."

What was your involvement in the Optimising Cover Cropping Program?

"I kept myself pretty busy by wearing a couple of different hats through the project.

I was involved on the project reference group, where we helped to steer the project and provide input on the topics that would be worth studying in more detail. It was great way to learn about what other growers are doing and also to have the experience of the researchers in the room to understand more about the research process.

I was also involved in one of the 14 field trials that focused on understanding the longer term impacts of cover cropping for building soil structure, supporting soil microbial communities and supressing soil borne diseases. Our trial was able to be set up more as a longer term piece because we were already exploring cover cropping for a number of years prior to the trial. This gave a new perspective to the types of research that was being undertaken, and ultimately was able to show that cover cropping is viable practice to supporting these management objectives in the longer term."

How do you use cover cropping on your farm?

"We've been able to build a fairly solid program, where we run a mustard like Caliente or Nemat before we plant in our carrots, primarily for the biofumigation benefits to support us suppress nematodes in the soil. For our brassica crops, we'll generally run a grass like ryegrass in the paddock before planting. We terminate the cover crop through strip spray and then follow up with a strip till, so that all of the ground remains covered through the entire process."

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

"We've been getting really good results with our carrot crop that has seen our quality improve dramatically and this has been really satisfying. The soil just performs better and we are seeing fewer weeds."

Have there been any challenges along the way?

"It's important to plan appropriately for the time that the cover crops will take to plant and the management through their growth. Ensuring that the crop is terminated at the right time to give you enough time to prepare your paddock for the cash crop can be a fine balance that takes some time to get right. This definitely is a different approach compared to the conventional grower who generally will prime the soil with external fertilizer and tillage inputs with less consideration for the timing window.

We've also felt the cost of sourcing some of the cover crop seeds, however over time the savings that we are making in fertilizer well and truly make up for any of these upfront costs."

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

"There is still a lot that we can learn about the impacts of the sequencing and timing of cover crops with the main cash crop. We found through the project the range of nuances that can be present in terms of the overall performance. Even starting with some other varieties of cover mustard and other types of cereals would be interesting to learn about."

Do you have any advice for growers who are keen to start using cover cropping?

My biggest piece of advice is that to get the most success out of cover cropping, growers will need to adopt a long term mindset. Learning about the best approaches and strategies that work for you takes more than one or two growing seasons and there is definitely no single approach that is appropriate for everyone. Once you commit to the long term, the benefits will start to flow."

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Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture. For more information visit www.horticulture.com.au.

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Image credit: Deon Gibson