

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

<b>Grower</b>	Jake Ryan
<b>Location</b>	Manjimup, Western Australia
<b>Planted area</b>	200 hectares – Cauliflower, Broccoli, Cabbage, Kale

## 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.

Jake Ryan, a third-generation vegetable grower from Manjimup in Western Australia, talks about his experience incorporating cover cropping with strip tillage on his family-run vegetable and livestock property and how the research completed through VG16068 continues to shape their practices.

## How did you learn about cover cropping project?

“We met Kelvin the lead project researcher at the VegetablesWA industry conference in November 2019 where his passion for the opportunity that new cover cropping techniques could bring to a farm like ours was so clear. We are somewhat different from a standard vegetable farm in that we incorporate both intensive vegetable production and grazing livestock in the same system.

We already had some idea about cover cropping however we weren’t using it consistently across the property and growing cycles. Kelvin visited our property after that conference and thought it would make a great trial site for his project, and specifically to focus on how cover cropping and strip tillage can work together.”

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

“Our farm was used as one of the 14 field trials where various cover cropping practices were examined – our trial was focused on the management of cover crops with strip tillage and how it would affect our upcoming broccoli and cauliflower crops. The trial consisted of several blocks looking at performance and management of conventional tillage, cover crops with conventional tillage and cover crops through a strip tillage approach. We first planted a mix cover crop consisting of sorghum, lablab, cowpea, vetch and linseed which was terminated before we transplanted seedlings using a strip tiller that was transported over to our farm from the east by the project team.



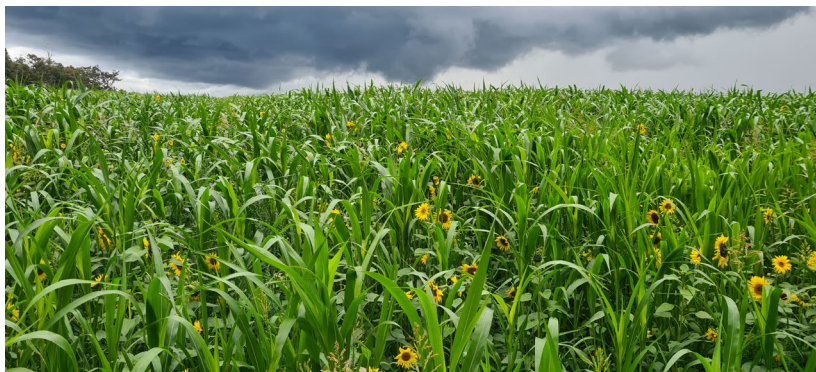
The trial showed us how valuable this method can be for saving time and resources when transplanting, because less tractor passes are required. The benefits to soil health and associated support for boosting productivity are also significant.”

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

“Since the initial trial back in 2019/20, we’ve transitioned to growing all of our vegetable crops using a cover crop + strip till combination. While we are still experimenting with the best way to integrate cover cropping within our operation, we always work off a 1 year vegetable, 4 year pasture livestock rotation. During the rotation years, we’ll generally be sowing

a mix of ryecorn, oats, barley, rygrass, clovers and serradella, which are then strip grazed in accordance to a grazing plan. After the crop is terminated, it's simply a matter of running the strip till straight into it before transplanting."

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



"Soil health is noticeably better and in short this has improved water retention, so we need to irrigate less. We have also reduced the amount of fertilizer that we are applying. Take Nitrogen for example – about 10 years ago before cover cropping we'd apply around 100kg of Urea a fortnight, but now we use just 3kg of Urea and 100kg of Sulphate of Ammonia every 3-4 weeks. Our total N load has dropped from around 23 units per week to less than 10 – so that's less than half Nitrogen, and we're growing better quality crops."

While we were always aware of cover cropping, the new knowledge about strip tillage has allowed us to grow the cover crop closer to when we plant our vegetable crop, whereas previously we'd need to leave the area fallow for a period. The approach is also saving us a lot of time. We'd normally do 5 passes with multi-disking and deep rip tillage, whereas now we can get by with just two passes, a roll of the cover crop and then the strip till with a tractor that can move faster. The reduced tillage also means we're using less fuel and we've calculated that we can save almost 10,000 litres of diesel just from the reduced tillage requirements alone. This has lowered our fuel bill significantly."

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

"Getting the strip till to work properly has probably been the biggest one. Because the cover crop's root biomass is so thick and dense, the strip tiller had trouble getting through it. When we moved to transplant, a lot of this biomass tended to get caught up in it, causing it to drag and not bury the transplants properly. So we've modified the transplanter a little bit by putting a straight disk in front of it to help cut through it more. We are also careful to ensure we've given the crop enough time to break down before starting the strip till."

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

"It's a crucial part of our business. We wouldn't do what we do now without the cover crop as it's even allowed us to increase our sheep stocking rate. We're always trialling new things and the next frontier for us would be to transition to a no-till approach. However this is something that is probably on the horizon in 10 years as more research is needed here."



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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](http://www.horticulture.com.au).*

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