# Impact case study — VG15070 A strategic approach to weed management for the Australian Vegetable Industry

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| **Grower** | Darren Long |
| **Location** | Sheffield, Tasmania |
| **Planted area** | 80 hectares – fresh market potatoes |

## What was the research about

Between 2018 and 2021, VG15070 *A strategic approach to weed management for the Australian Vegetable Industry* (delivered by the University of New England) worked to develop new knowledge and support growers to implement integrated approaches to weed management. The project focused on several priority weeds such as nutgrass, wild radish and dwarf nettle, and management practices relevant for a range of vegetable growing operations, including cover cropping, strip tillage, steam weeding, stale seed beds and inter-row cultivation. The project delivered an *Integrated Weed Management Manual*, weed management fact sheets, and grower engagement initiatives such as field days and other extension activities supported through the *VegNET* and *Soil Wealth and Integrated Crop Protection* programs.

Darren Long, a fresh potato grower from Sheffield Tasmania talked about the benefits he has experienced through adopting an integrated approach to weed management, and the benefits that the project has provided by supporting him to seek continual improvements to his management approaches.

## How did you get involved with the project?

“As an owner-operator we’ve approached our farming from a wholistic perspective for a number of years now, motivated by a desire to reduce our reliance on chemical inputs and support land and soil regeneration. As a result, I have been well connected with a range of different stakeholders in the industry who are keen to learn from us and support what we do.

When the project got underway I was approached by the researcher team, who were interested to understand further about my existing approaches to weed management, which focused primarily on using cover cropping to suppress weeds and act as a biofumigant.

From there, I agreed to be involved with some of the research, including monitoring weed seed banks across our property to understand the response that our cover cropping practices have for weed numbers.”

## You’ve mentioned cover cropping as your approach to weed management. What does this involve?

“Our primary approach to weed management is through cover cropping. We’ve selected a few key species that essentially suffocate out any emerging weeds and also burn out weed seedlings through a biofumigation process. Some of the species that we’ve had success with include Nemat (rocket lettuce), Caliente 199 (Indian mustard), oats and ryegrass. We use a direct seeding approach using a double disk seeder to minimise soil disturbance. This approach has been refined and adjusted over a number of years.

Recently we’ve started to use a rock picker machine to follow through our paddocks after harvest to pick up remaining volunteer potatoes that would otherwise present a disease risk if left unchecked. We’re generally successful and find we collect about 80% of this material, further reducing our reliance on herbicides as a control method.”

## What have been the benefits of utilising integrated weed management techniques?

“I think it’s important to recognise that there is no one size fits all approach, given that different techniques will suit different growers and crops. Using cover cropping has allowed us to significantly reduce our reliance on chemicals and improve the structure of our soils which helps keep other diseases in check. In fact we’ve completely eliminated any reliance on using herbicides to control weeds with our potato crops in recent years, which of course represents a nice cost saving as well as from a health perspective the less we handle these chemicals, the better. Another benefit is that the cover crop approach allows us to shorten the rotation between crops, so we can increase our cropping interval.

We actually spend more time working to support our cover crops compared to the potato crop itself. This might seem

strange to some, but to us it signifies the importance of the cover crop to our farming system."

## How did you benefit from being directly involved in project VG15070?

"The main benefit we found was the ability to connect with researchers and other growers to learn about their approaches and to build awareness for the weed management practices.

Having the researchers on site at our property was also a valuable learning experience in terms of understanding their testing methods, such as the soil probe test.

I think its important that we keep on recruiting and engaging growers around the importance of these practices for supporting a more integrated approach to weed management. Getting involved with the research hands-on is the best way to learn."

## Have there been any challenges along the way?

"One of the biggest hurdles we've found is getting access to suitable equipment. For example, crimp rollers, an important piece of equipment to terminate cover crops, were extremely rare down here in recent times. We've found ourselves having to modify other pieces of equipment to suit our needs, such as replacing the corrugated piping in our direct seeding drillers with flat piping, to ensure that seeds don't get stuck.

Another challenge is the shortage of agronomists who have the knowledge and experience to adapt to these new ways of thinking. It is important that growers are supported by their agronomists when seeking to move to a more wholistic approach to weed management that minimises the reliance on chemicals."

## What does the future of weed management hold for your business? What are the opportunities?

"I really like the theory behind steam weeding, given that it is another low invasive control method. New technology current under development that uses microwaves for controlling weeds also looks very promising and we'd be interested in trying that on our property. Basically any technique or method that supports growers to reduce reliance on chemicals is worthy of support, as the environmental and health benefits of moving to these approaches are just too important to ignore."

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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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