Fresh approach brings positives

By Chelsea Ashmeade

From sunflowers to chicory and forage brassica to millet, these are just some of the different plant species John Quinn, of Mount Bryan, has used to diversify his farming program.

Seeing the need to improve their soil, Mr Quinn started making change about four years ago and, so far, it's working to their advantage - with their merino flock especially enjoying the additional feed.

Ilfradale farm, Mount Bryan, in the upper mid north of South Australia, is where you'll find Mr Quinn, a fourth generation farmer and his family.

Mr Quinn, his wife Jodie and their children can be found at the helm of the farm nestled in amongst the Mount Bryan hills.

With the fifth generation at the heels of John, he has made change now to help future-proof the farm.

The Quinn family - a common name in the Mount Bryan area - have farmed the land since the 1800s.

With various parcels of land purchased and sold along the way, the family is still successfully farming the soil once done by their forefathers.

But, they've recently changed and adapted their practices to work with Mother Nature and the soil conditions - and it's paying off.

After returning to the farm in 2004, Mr Quinn said it was at the same time they switched over to no-till farming practices using their Horwood Bagshaw airseeder.

John Quinn and wife Jodie with their four children Eliza, Annabelle, William and Lucy on the farm at Mount Bryan.

Years of cultivation had resulted in a hardpan under the surface and some paddocks were unable to be turned.

"No-till solved these issues, but I became increasingly disappointed over the years that we were not seeing improvements in our crop performance," Mr Quinn said.

"The more living roots you have in your soil, the better."

Mr Quinn said using a Horwood Bagshaw system made the seeding operation much more efficient. It also allowed them to continuous crop by seeding into the previous year's crop stubble.

"We were expecting to see significant improvements in our soils because of this, and therefore improved crop yields," Mr Quinn said.

"I think we were doing things pretty well agronomy wise, it was simply the environmental conditions that were causing issues."

With fine clay loam soils that compact easily and set hard when they dry out, limited moisture results in quick suffering crops.

"Returning organic matter to the soil is near impossible when you have thin short cereal stubbles."

After fighting Mother Nature for many years and getting nowhere, Mr Quinn decided to search other ways of going about his cropping practices. He knew they had to improve their soil health but wasn't sure what his next move would be.

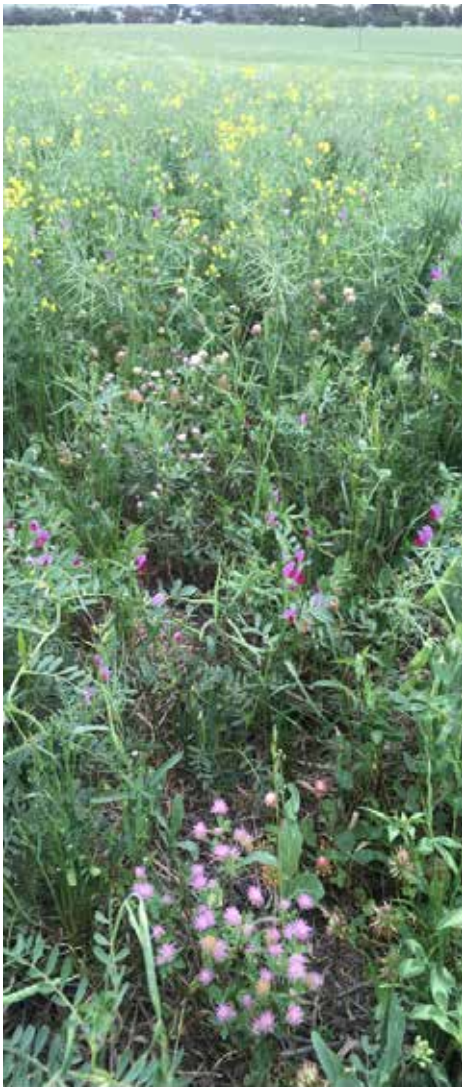
"We looked at applying chicken

Soil health improving each season

manure, but the cost was prohibitive, especially for something that had to be repeated over time. So one day, I simply googled soil carbon. There was a lot of information.

"I eventually stumbled across articles and YouTube videos on farmers who were prioritising the health of their soils. Cover cropping, biological farming, holistic management and so on," Mr Quinn said.

Since that day, he has thought differently about his soils; that's where the trials with crop diversity started.



Mr Quinn has been experimenting with a mixture of seeds including this Legume/canola/tillage radish break crop.

"We started growing multispecies winter grazing crops in smaller holding paddocks and would follow them when possible with a multi-species summer grazing crop."

Mr Quinn said research from around the world suggests you can significantly speed up the carbon building process in your soil by using a diversity of plants versus a monoculture.

"Different species have different root structures and therefore can access different areas of the soil profile at the same time.

"The diversity is also said to provide soil organisms with a much greater choice of 'food', allowing them to do their job cycling carbon and nutrients in the soil."

Their sheep also appreciate the diversity and choice, and do "very well" on these cover crops.

"To me, this all made a lot of sense. As a lot of farmers do, we use grazing crops as break crops in our cropping phase.

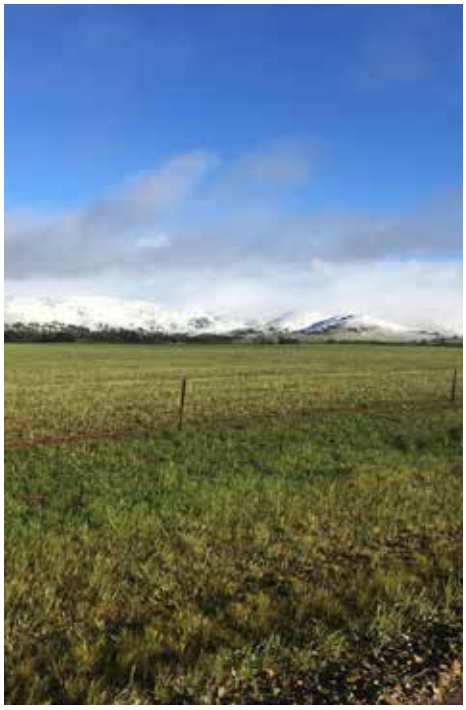
"From now on, all of these crops will be multi species plantings, and they will be tailored to whatever we think the soil requires."

"The more living roots you have in your soil, the better," Mr Quinn said.

This year Mr Quinn said they hoped to do some companion sowing - species such as vetch and canola into a cereal crop and then terminating them prior to harvest.

With up to 10 species in the mix, Mr Quinn said they've used cool season seeds like oats, barley, wheat, triticale, cereal rye and vetch.

Then moving into the warm species including sunflowers, red clover, sun hemp, safflower. "Standouts have been tillage radish, cereal



Cold winters aren't unusual in Mount Bryan and snow on the hills, in grazing land, is just one of nature's elements Mr Quinn needs to deal with.

A multi-species forage crop planted at Ilfradale.

Adapting Ilfradale over the years

rye, forage brassica and the sunflowers. Disappointments include lentils (because it's too cold) and sun hemp."

"Our first cover crop was just a mixture of seeds that we could source relatively easily. Just a mix of cereals, legumes and clovers. In the second year, we bought a premixed cover crop blend that included around 12 species," Mr Quinn said.

Since then, Mr Quinn has harvested and continued to use that seed.

"If a summer storm is forecast and I need seed immediately, I just keep it simple and plant whatever I can buy off the shelf from nearby. If we have more time, then I will order a cover crop mix."

Mr Quinn said throughout his research he had been influenced by many farmers who were planting diverse cover crops for soil health benefits.

"...especially in North America, but there are plenty in Australia giving it a go now too.

I have basically taken little bits of information sourced through research over the last 4-5 years, and tried to come up with a system that will work for us."

With change comes success and failures but Mr Quinn said he would give anything a go if he thought it made sense.

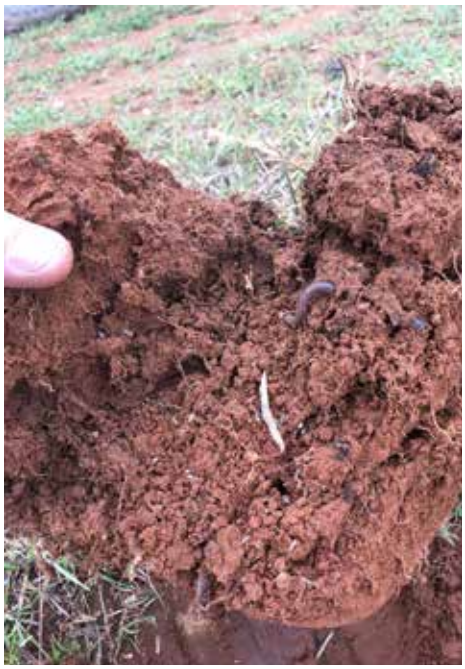
"I think the most important tool a farmer or anyone in business can have, is an open mind.

"It doesn't cost anything to listen to new ideas, even if they challenge your current beliefs."

"I definitely enjoy trying different ideas. It adds some excitement to the whole job.

"And trials are the best way to see if a new idea will work for you."

Ilfradale farm history:



Left: Worms and white ants in a clump of soil, show improved health. Right: A cross-section of roots in the soil at Ilfradale.

Ilfradale is a shared farm with both John and his wife, along with his parents who live just down the road.

"My dad is 80 and still works on the farm 7 days a week, by his choice," Mr Quinn said.

"Because of our elevation, Mount Bryan has very cold winters."

Ranging from deep soil lucerne flats to mountainous grazing paddocks on the Razorback range at Mount Bryan East, the soils range from acidic red brown clays to alkaline loams on some rises.

"The Mount Bryan township is situated in the bottom of a valley, but is still 520mt above sea level."

Mr Quinn said the farm was a mixture of growing cereal cash crops, multi species grazing crops and merino based cross-bred lambs running on lucerne based pastures.

"Our ratio of cropping to livestock has changed over the years depending on markets and climate. We have cropped up to 2000 acres, but have wound that back to now cropping around 700 acres cash crop with another 400 sown to grazing cover crops."

Mr Quinn said they also planted about 100 acres of summer cover crop as part of their soil health program.

"Lamb production is now our main income stream. As a side line, we also crop around 3000 acres on a contract basis for some neighbouring farmers."

With an average rainfall of about 425mm (17 inches) Mr Quinn said it wasn't often they received that amount.

"Because of our elevation, Mount Bryan has very cold winters."

Pasture growth...

With the cold winter months bringing frosts and temperatures

Growth and success for the Quinn family

often not hitting double figures, crop and pasture growth slows down during July and August.

"...and then by the end of September we can be dealing with hot northerly winds and frosts at the same time.

"Both of which can make finishing a cereal grain crop quite a challenge."

While the cereal crops can be a challenge to finish off, canola and legumes are even more of a risk.

"On the pasture side, we've tried clovers and medics, but the cold winter just slows their growth so much that you really couldn't call them productive."

To help combat and work with the weather, they have added lucerne to their pasture phase.

"It is a very tough plant and obviously a perennial so it is ready to perform whenever conditions allow."

Success along the way...

Whilst it's only early days with the changes, Mr Quinn said they have found quite a few worms in the soil and a number of white ants.

"These are signs that we might be heading in the right direction," he said.

He said quite often the multi species crops were planted without fertiliser but had so far performed well.

"...dealing with hot northerly winds and frosts at the same time..."

"Sometimes it's because I need all boxes in the seed cart to sow small and large seeds separately, and other times because I just want to see how they perform without added nutrition," Mr Quinn said.

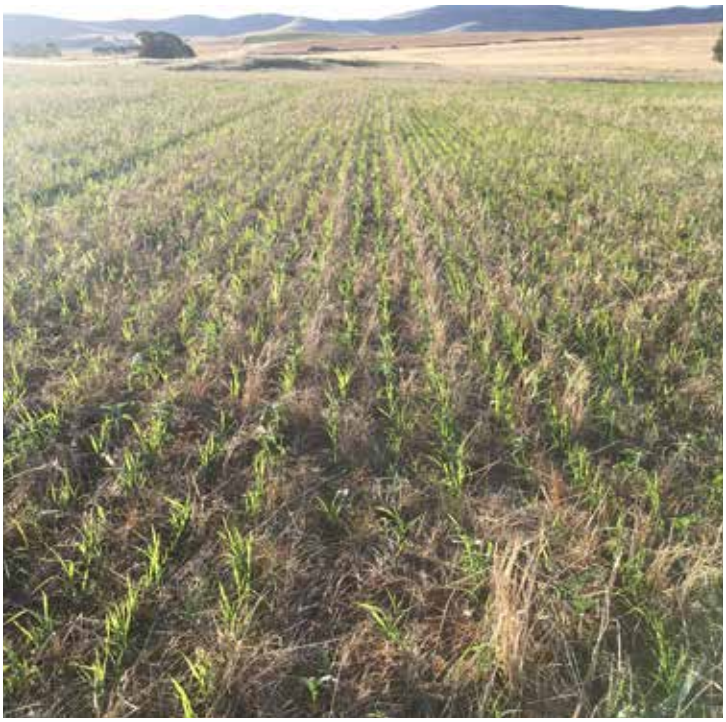
"The multispecies crop sown with no fertiliser grew double the biomass of any other crop that year. It looked really healthy the whole way through."

Now in his fifth year of adding crop diversity to the farm, Mr Quinn said there was no reason not to continue with what they were doing.

"Our livestock do well on the diverse plantings. I have seen sheep looking 'bored' when confronted with a single species of food.

"And, hopefully, the benefits to our soil will keep building."

Moving broadscale, Mr Quinn said they would now start to measure their outcomes to see what difference they were making.



Summer multi species emerging through Winter Multi species residue. Above: Sunflowers grown at Ilfradale.

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