Seeding 2021 at Kingara Farms, Lock, where the Polkinghorne family trialled a mix of beans and lentils.

Increasing all the positives

By Chelsea Ashmeade

While the results are yet to tell a full story, the Polkinghorne family at Lock, Eyre Peninsula, are looking forward to this year's intercrop going in.

Andrew and his wife Jenny along with their son Tim, his partner and their children, are paving the way for crop diversity.

Last season was the first year of trialling two crops - beans and lentils - in the one paddock together.

The mix was planted into a paddock that wasn't overly suited to lentils - rocky and uneven, making harvesting tricky.

"It was an effort to do," Andrew Polkinghorne said.

"The paddock had not had a pulse crop on it for a long time."

Mr Polkinghorne said the idea behind planting the two together was that they hoped to stand the lentils up for greater harvesting outcomes.

He said the lentil crop was planted into an uneven paddock - where nothing had been grown for many years - and with the help of the bean intercrop it was able to stand and be successfully harvested.

In a trial plot of 113ha, they are pleased with the outcome so far and are well on their way to preparing for the season ahead.

"We really want to improve the harvestability of the lentils," he said. "I think it did achieve that to a degree."

This year will assist the family with a bigger picture as to how it's helping their farm.

The family will continue to experiment and work on ways to improve harvest amounts and work with

Results yet to tell the full story

The Polkinghorne family of Lock, SA's Eyre Peninsula, have diversified their operations to allow for greater positive outcomes.

their limestone-based soil.

"The results are really limited to just one season, we will know more next year," Mr Polkinghorne said.

"The jury really is out on how successful it was.

"We will do another season to see what happens."

Yield figures show the family took 270kg of beans/ha and 600kg of lentils/ha off of the mixed crop, while the lentils alongside took about 1.1-1.2tonne/ha - keeping in mind it's in a better soil type.

Mr Polkinghorne said the returns on beans are modest at those yields but the lentils are quite lucrative.

Mapping out the paddock and sowing rates, Mr Polkinghorne said they had beans in one box and lentils in another.

"We will do another season to see what happens," Andrew Polkinghorne.

The beans were automatically turned on and off via a prescription map which was uploaded to the air seeder with the sowing rate of 60kg/ha and lentils at a rate of 35kg/ha.

"...we had a few broadleaf through it, that did not affect the yield."

This year they will use Highland Lentils, to allow better standability and they are less prone to pod shattering from wind. This season they will trial Bendoc beans. The group B tolerant bean Bendoc will provide them with more herbicide options to control the weeds in their crop.

Mr Polkinghorne's son Tim, who oversees the farm operations, said the early stages of this experiment were showing their capabilities of broadening crop options.

The decision of planting two legumes together came down to simplicity, Tim said. Simply by way of how they are treated at various stages of the season from canopy closure fungicides,

insecticide application, timing and crop stage for grass free spraying.

While it's still in infancy stages, Tim anticipates the nitrogen fixation would be better.

"...beans seem to be better at doing this than what lentils are."

A wheat crop will follow in the paddock used for the bean and len-

Working to improve their surrounds

til experiment for this year's cropping program.

"I'm expecting that the wheat crop on that area this year will be better than a typical first year wheat following lentils due to the better nitrogen fixing abilities of beans and the extra biomass produced," Tim said.

"At the end of the day, we were wanting to grow lentils on a paddock which was too rugged and not typically suitable, and decided that intercropping with something like beans or canola would help the lentils climb the stalk and get them to a harvestable level away from the limestone," Tim said.

"Penny Roberts and her team provided a lot of information and observations..."

With a significant cropping program already existing, Tim said they wanted to make it as seamless as possible as to not disrupt other operations.

Limitations Tim found with the crop included running a group B tolerant lentil with a non group B tolerant faba bean made in crop broadleaf weed control tricky, and placed a lot of faith in our pre-sowing knockdowns.

He said matching maturity of the two crops made desiccation timing difficult, also.

Tim said their decision to intercrop was brought on by the want to find break crop options on part of a farm they had recently bought.

While two thirds of the 280ha paddock was suited to lentils, they weren't convinced about the remaining area at one end of the paddock.

"We had played around with vetch/canola intercrops previously on a different soil type as part of a paddock rejuvenation process," Tim said.

With help from their agronomist, they were able to get all the necessary information needed to get started.

It was also the work, trials and data information from Penny Roberts and the SARDI team which helped the Polkinghorne family to successfully complete their first intercrop of beans and lentils.

"Penny Roberts and her team provided a lot of information and observations they had made through their previous trial results."

It's an idea that's given them the opportunity to try something new, increase potential for profit and see paddocks rejuvenate.

It's a family affair at Kingara Farms, Lock, with Tim and his partner Ellen and their children involved with the operations. Tim and Ellen work closely alongside Andrew and Jenny.

Harvest time is flat out at Kingara Farms where they have a significant cropping program.

Farming the land of Lock

Who are they?

The Polkinghorne family at Kingara Farms consists of Andrew and his wife Jenny along with their son Tim and his partner Ellen Hardy and their children, run a 7000ha program.

Their mixed cropping program includes wheat, barley, canola, lentils and beans, while they also run a flock of self-replacing merinos.

The Polkinghorne family have also used liquid fertiliser since 2003.

Tim said they have made small changes and variations to the way they do it along the way.

The land in which they farm consists of a range of soil types across the whole operation, from grey calcareous sand and dune swale to heavy loam/clay soils.

"Some soil types have shallow limestone reefs while others have scattered limestone on the surface with good depth of soil.

"Where the intercrop was trialled, the soil was some of our heavier dirt, with some sharp limestone ridges."

"Some soil types have shallow limestome reefs while others have scattered limestone..."

Tim, his father Andrew and their families aim to better their soil and add crop diversity to their program with the aim of the better harvest rates.

They are among many families throughout South Australia and Australia trialling options to increase productivity and better their soil types.

A bit about Lock:

With an average rainfall of about 320-350mm, Lock sits in the heart of the Eyre Peninsula and is surrounded by undulating farming country.

Lock is the main grain storage hub for the EP and is roughly 123 metres above sea level.

Settled in the 1860s, it was predominantly sheep graziers who used the land before it became a grain-growing community.

Seeding time is a big operation for the Polkinghorne family at Kingara Farms.

Tim with his sons in a canola paddock at their property at Lock, on SA's Eyre Peninsula.

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