No-till a no-brainer for mixed farmers

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Converting to a no-till system almost a decade ago has benefited the Loller family's livestock business as much as their cropping enterprise.

Balancing the competing demands of a mixed enterprise farm is never straightforward. Compromise is often the name of the game, with many growers juggling priorities and using workaround strategies.

For third-generation Mallee farmer Peter Loller, balancing the demands of cropping and livestock is one of his biggest challenges. "Having sheep and cropping is a constant battle," he said. "But I still think they complement each other."

Adoption of a no-till system almost 10 years ago was a turning point for the Loller family; the change delivering a series of flow-on benefits across the enterprise ranging from improved soil health to increased stocking rates.

The Loller's 3,400ha property, located 20km east of Karoonda, is run by Peter and his wife Hannah with the help of Peter's parents Don and Dorothy, full-time employee Dave Humphries and school-based apprentice Lawrence Somerscales, with school holiday assistance from their three children Max, Bridie and Patrick.

PETER LOLLER, WHO COMBINES SHEEP AND CROPPING ON HIS MALLEE PROPERTY, FOUND THAT A SWITCH TO NO-TILL CROPPING PRODUCED BENEFITS FOR HIS SHEEP AS WELL AS HIS CROPPING PROGRAM.

PETER LOLLER (CENTRE) WITH HIS WIFE HANNAH (RIGHT) AND THEIR CHILDREN, MAX, BRIDIE AND PATRICK.

Their transition to no-till began following the drought in the early 2000s, when soil erosion caused by a combination of overgrazing and conventional tillage emerged as a significant issue.

"In 2002 we had a lot of country that was pretty bare," said Peter. "Because we were working up the land we were very vulnerable to the wind. Looking over the fence to a neighbour's no-tilled property opened our eyes. They might have had a similar or slightly better crop than ours but the main difference was that their whole place held and ours didn't. It was about combatting wind erosion."

The Lollers began trialling no-till in 2004 and switched to a full no-till system in 2010 with the help of fellow Mallee farmer Allen Buckley, through a SANTFA mentorship program. Considered a pioneer of no-till in the region, Allen supported the Lollers in their move away from conventional cropping. "Allen's like the king of no-till in the Mallee and he saved us making a lot of mistakes," said Peter. "We talked to him before we did anything and while we had an agronomist who did a lot of the planning, Allen definitely helped us work out what to avoid and how to go about it.

"He actually came out here one day during seeding. To have someone take time away from their own seeding program to come and look at yours is pretty amazing."

One of the key strategies the Lollers used in changing to no-till was to use 15cm knife points instead of the more common 10cm points on their Horwood Bagshaw Scaribar to break through a compacted layer of soil. Minimal rocks on the property meant they were able to work to that depth without unearthing more issues.

Peter believes working deeper to break up the tillage hard pan contributed to the success of no-till on their property. "I had a plough go wayward in one of the droughts. It basically broke so a couple of tines dropped, and where the soil was ripped deeper there was a clear line where

a better crop grew. It was a 20cm strip right up and down the paddock that showed we had to get through the working hard pan, which at that stage was 7cm to 10cm down."

The Lollers are now experimenting with deep ripping to make further inroads into soil compaction, although a deep ripping trial conducted this year has generated mixed results due to poor subsoil moisture. "One thing we've learnt is that if you have no subsoil moisture in summertime it's not worth ripping because the first lot of rain just goes straight through," Peter said. "We actually got better germination on areas where we hadn't ripped, but that's just about learning. If we have subsoil moisture next year we'll take the trial further, but there are quite a few ripping trials in the Mallee this year so there'll be a fair bit of information going around."

After almost 10 years of no-till the Lollers are seeing improvements in their soils, with the benefits flowing into their sheep enterprise.

"No-till is a system, it's not a piece of machinery," said Peter. "The more you do it, the more you reaffirm it.

"Converting to no-till was initially about preventing wind erosion but we are seeing improvements to soil health and consequently to the quality of sheep feed."

They have also tightened their rotations.

"Since we've closed up rotations we've been able to grow a lot better sheep feed. By cropping more often there's more fertility in the soil which leads to more feed.

SULLA IN THIS TRIAL PLOT ON 'RELATIVELY DEEP SAND' PERFORMED BETTER THAN EXPECTED AND APPEARS TO PENETRATE HARD PANS BETTER THAN CANOLA OR LUPINS.

LUPINS ARE AN INTEGRAL PART OF THE LOLLERS' CROPPING PROGRAM.

"When I first came back to the farm we were running a one-year crop, two-year sheep system; basically a three-year rotation. From there we went to year-in, year-out or three years in and one year out, depending on how the paddocks performed, and started to crop the better ground more often.

"I noticed that our best stocking rates were on paddocks we'd cropped the year before, so we started cropping more and ran the same amount of sheep on less acres."

The Lollers also found that their livestock were emerging from summer in better condition due to stubble grazing and an increase to their fertiliser rates meant their whole system performed more efficiently. "Because we were cropping more often we put on more fertiliser and the system seems to work better. There's more soil biota and less root disease."

Today they generally crop 1,600ha of their 3,400ha property, although they reduced their program to 1,050ha this season due to a poor start. They have almost 200ha under permanent pasture and are currently running 1,400 breeding ewes and 650 ewe hoggets.

Managing stocking rates, stubble grazing and feed gaps are the main challenges they face in balancing the demands of the stock on their mixed enterprise farm. This year's reduced cropping program means there will be less stubble for grazing after harvest and Peter plans to move the sheep into containment lots to avoid overgrazing.

"We tend to move our sheep into containment lots very quickly; usually a lot earlier than most. We prefer having the option to let them out onto feed later rather than overgrazing first and being forced to put them in containment lots by lack of paddock feed."

He doesn't have a formal system for monitoring and moving his stock but works to a 100-day rainfall system he learnt through Rural Directions on a feed tour. "I don't have a spreadsheet to consciously monitor it, but in my head I'm always thinking about how much rain we have had over the past 100 days. If that starts to drop away then I'm already thinking about getting rid of something or containment lotting. In my head I'm three or four weeks ahead of what's about to happen."

Peter also aims to shift sheep from paddock to paddock periodically to prevent them establishing 'camps' and degrading those areas. He learnt from a trial conducted at Lameroo that sheep left in a paddock for a month tend to establish camps on the top of sand hills, and that rotating mobs between paddocks as often as every week can help avoid that and reduce their impact on the environment.

Managing feed gaps for stock has also changed on the Lollers' property since they converted to no-till.

"I think sheep and cropping complement each other but we're reducing our grass weeds to benefit our cropping program,

which is impacting the amount of grazing we are getting from our cropping paddocks, so our feed gaps have changed. We're starting to think about putting some rye in early on one part of the property to make sure we've got early feed and focussing on predominantly medic pasture in other paddocks. That's just part of the crop/livestock juggle."

Alternative pasture species are another option, with insights to what might work in their conditions and farming system one of the positive by-products of hosting a Mallee Sustainable Farming (MSF) trial site on their property since 2009. Two forage legumes that look promising include arrowleaf clover and sulla.

The Lollers planted arrowleaf clover in 2017 and 2018, using it for grazing and harvesting seed for future plantings. "Even though it was a drought last year we had subsoil moisture, so we grew great amounts of arrowleaf clover and the lambs went really well on it in our system," said Peter. "And it stands up enough that you can harvest it."

At this stage they have sown only 20ha paddock of sulla, but are optimistic about its ability to break through hard pans. "Even though it's not supposed to be suitable for lower rainfall areas the sulla grew some amazing amounts of biomass on our trial site, which is on relatively deep sand. It's gone a lot better on the trial site than it has in the paddock but we're finding that it gets its tap root well past hard pans we can't get canola, lupins or anything else to penetrate. We're hoping we can open up some soils with it."

Finding a crop to cover the property's sand dunes and provide supplementary forage is another focus for the Lollers.

VELDT GRASS HAS PERFORMED WELL IN TRIALS ON PETER'S PROPERTY, PRODUCING GOOD BIOMASS IN TIME FOR LAMBING IN JUNE AND JULY, AND HE IS PLANNING TO ESTABLISH A MIX OF VELDT AND ARROWLEAF CLOVER ON HIS SANDHILL PADDOCKS.

MSF trialled tedera as a forage option but Peter says veldt grass has shown the most potential. "Tedera didn't really fire up, so we've planted a few high sand dune paddocks with veldt grass and have found we can get a lot more biomass out of that. And it tends to get established before winter grasses start in autumn so we can lamb onto it in June or July, if it's spelled well enough over summer."

The Lollers' property is fenced according to soil type; a strategy established by Don and Dorothy when they managed the business. This approach means they have six 40ha sand dune paddocks on which they plan to establish a mix of veldt grass and arrowleaf clover.

The family grows wheat, barley and lupins that all yield an average of about 1.5t/ha. Subsoil moisture is the main limiting factor on their cropping program and was an issue last year when they received only one 6mm rainfall event in 150 days.

Their participation in MSF trials means they have had access to the Yield Prophet computer model that generates simulations of potential crop yield with different levels of inputs and they have used the results of simulations using conditions on their property to improve their decision-making around fertiliser applications. "You can put in an amount of nitrogen and the available subsoil moisture at different times of the year and at different depths and the program helps you work out the happy medium for nitrogen," said Peter. "It helps me make informed rather than gut decisions."

Most of their fertiliser is applied up-front, with supplementary spreading in some seasons. They have experimented with variable rate (VR) nitrogen applications based on manual calculations but are not equipped for full VR application at this stage. "The MSF trials showed us that up-front nitrogen applications provide the best bang for our buck, but efficiency is also important. If seeding's going to take two weeks longer because of the time it takes to fill up the seeder box more often then you've got to take that into consideration. You can't compromise other things like germination and frost windows."

Next on the Lollers' agenda is getting a neighbouring property they recently bought up to 'no-till' speed. The 890ha property is conveniently located across the road from their existing farm, making the purchase a 'natural progression' for the family. "We have things working well here and know what it will take to get the other property up and going and working in our system without too many surprises."

MIXED COVER CROPS
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