

A decade on and still reaping the benefits of no-till

KATHERINE MAITLAND

A decade ago Booborowie farmer, Bill McMahon talked to *The No-Till Journal*, now *The Cutting Edge*, about how no-till methods were benefiting his cropping program. Ten years on, we revisit Bill to see what has changed, what's stayed the same and what his views are on no-till farming today.

Bill McMahon has farmed his 1,150 ha property in the Mid North for almost 25 years. He has been exploring no-till farming practices since the 1980s and has found that, with no-till, his soils are healthier, his water efficiency levels remain constant throughout the dry years and his overall farm productivity has increased.

“Our overall efficiencies have improved since using no-till methods, as we can now dry-sow and/or sow earlier in the season,” Bill said. “It used to be that you couldn't drive into a wet paddock, whereas now, as soon as the rain stops, you can start up again. This comes down to soil health and minimal water wastage, thanks to no-till farming methods.

We recently changed from using walking wheels to swivelling wheels to ensure they follow the machine on contours.

“We have noticed a huge improvement in our soils. The sub-soil is still hard beneath, but the soil generally is in better shape than it was a decade ago. Retaining a level of moisture in the top soil has contributed to this. The stubble breakdown has improved as well, which reduces evaporation and holds moisture in the soil.

“We have an average rainfall of 420 mm, with 300 mm in the growing season, so preserving moisture is important. Our water efficiency is still around what it was 10 years ago, 15 to 17 kg of grain/ha for every mm of available moisture, but what has changed is that the water levels don't alter like they do with varying annual yields. Our yields have gone up and down in the past 10 years (average yields 2.8 t/ha) due to the seasonal droughts and weather patterns, but the soils are still retaining the moisture,” he said.



BOOBOROWIE FARMER BILL MCMAHON HAS BEEN USING NO-TILL FARMING METHODS ON HIS 1,150 HA PROPERTY FOR MORE THAN 20 YEARS.

A decade ago Bill was still moving into no-till farming practices. Today most of his property is no-till. He also uses a pasture phase farming system, whereby he grows sub clovers for seven or eight years in a paddock, followed by seven to eight years of wheat. This system has allowed greater weed control, soil vitality and more nitrogen and carbon in the soil,” he said.

“Of our 1,150 ha, we have 150 ha which is not arable. We have a mixed farming system of 600 ha of cropping and 300 to 400 ha for sheep grazing. We like to rotate the crops and pastures around in a pasture phase farming system to ensure

the paddocks receive the right nutrients.

“After the legume phase we have enough nitrogen in the soil to grow four or five years of wheat.

“Little soil erosion and stubble retention have also helped strengthen the soil structure and keep the nutrients in the paddock.”

Until a few years ago Bill was growing 700 to 800 ha of crop a year, but he has now reduced the area of crop to 600 ha. Other changes to his cropping regime in the past decade include an increase in the area of wheat and altering the timing of nitrogen application.

“We are growing a little more wheat than we were in 2003 and we are no longer growing any lupins. We still grow the same wheat varieties (Estoc and Gladadius) plus Stingray canola, barley, and oats and vetch for hay and grazing. Depending on the year and the markets we might grow more wheat and/or less canola,” he said.

“And we now put half the nitrogen on at seeding and half after seeding. Ten years ago we would probably have put nitrogen on during or before we sowed the crop. We also dry-sow all our canola before the opening rains, which we didn't do in 2003.”

When my father managed our farm his gross profit was more than 25% of his income. These days you're lucky to get 10%.

Sowing crops earlier means Bill has been able to accelerate early plant growth and maximise utilisation of the moisture available during the growing season.

“It really depends on the crop we are growing as to when and why we sow early. In the dry years in 2008, 2009 and 2010 we had to make full use of the growing season, so we sowed a bit earlier. The yields for these years were average, around 2.5 to 2.8 t/ha for the year.”

Farm machinery and technology has also changed in recent times to improve seeding and harvest-time efficiencies.

“We have been using a three-box Ryan Air Seeder with three rows of tines, pulled by a 200 hp Case tractor. This combination has worked well for us, but we are looking to move onto something else now with more trash clearance and a higher breakout, so we can sow earlier.

“We are using all the latest GPS guiding systems, which we were not using in 2003. This has reduced the time spent in the paddock and improved our accuracy.

“We have also upgraded our sprayer to include air-induction jets, which produce larger droplets so the spray does not drift as much,” he said.

Bill has used press wheels for years but has recently changed from using walking wheels to swivelling wheels to ensure the wheels follow the machine on contours.

“I think when it comes to no-till farming, press wheels and knife points are critical. Depending on what we are sowing, our air-seeder has knife points and press wheels on a 230 mm row spacing, which allows for good crop establishment.

“Stubble retention is also a must. By retaining a bulk of the stubble we have been able to maximise water use efficiency and give the soils an extra boost of nitrogen.

“We are on sloping country that used to be managed by putting in contour banks. We don't need to rejuvenate the contour banks anymore because we don't have the erosion we used to have before we started no-till farming.

“We went from furrow farming to direct till and now to no-till and the difference in water erosion and water run-off is amazing. The dams are not full anymore but the soil moisture profile is



A COMBINATION OF NO-TILL, STUBBLE RETENTION AND EXTENDED LEGUME PHASES IS PAYING OFF FOR BILL MCMAHON, WITH BIG IMPROVEMENTS IN SOIL STRUCTURE AND MOISTURE-HOLDING CAPACITY.

FARM SNAPSHOT

FARMERS:

Bill McMahon and his wife Kaye

LAND:

Approximately 1,150 ha at Booborowie, in the Mid-North

RAINFALL:

Approximately 420 mm with 300 mm in the growing season

CROPS:

Wheat, canola, barley, oats and vetch

FARMING SYSTEM:

Mixed. No-till cropping and sheep

HISTORY:

Bill is the third McMahon generation to farm the property

NEGATIVES:

Feed can be a bit tight at the break of the season when moving the sheep from stubbles onto pastures that need time to get going. Time pressure is also an issue around the season break, when he has to juggle seeding and dealing with stock and pasture needs.

POSITIVES:

Highly-productive pastures that are reasonably complementary to the cropping program. Good soil N levels.

significantly better. Nobody saw no-till coming and it has certainly taken off,” he said.

Weed issues, particularly ryegrass, are still a concern in Bill's farming regime, but radish has become less of an issue than it was a decade ago.

“We are still very careful about the radish, but it's not as big a problem as it was. Ryegrass, on the other hand, is still a major concern, as is wild oats. We have always battled with ryegrass, even before no-till farming and phase farming, but we keep an eye on it and manage it as we can.

“The only other thing that we have noticed is an increase in brome grass. This has been appearing in our paddocks more recently due to the elimination of other weeds.”

Bill uses herbicides, sheep grazing and rotations of oats and vetch to control weed issues on his property.

“On the canola we use Select (clethodim), and on the wheat it's a combination of PowerMAX (glyphosate) at a rate of 1 L/ha and Gramoxone (paraquat) at a rate of one to 1.5 L/ha. This has been successful for us and we will continue with this program next year.

“Depending on the year we might double knock before seeding, particularly ahead of barley, which tends to be the last crop in the rotation. This year we did double knock.



GYPSUM SPREADING HAS BEEN PART OF BILL'S MANAGEMENT PROGRAM FOR 30 YEARS. ADDING GYPSUM HAS IMPROVED THE STRUCTURE OF HIS HARD-SETTING RED-BROWN SOILS AND PROVIDES SULPHUR FOR THE CANOLA CROPS THAT ARE AN IMPORTANT PART OF HIS CROPPING PROGRAM.

"We also grow crops such as vetch and oats to reduce the ryegrass, and the sheep help to keep the weeds under control through grazing, although they also can compact the soils," he said.

Using no-till farming methods has allowed the stubbles on Bill's farm to become a habitat for mice and occasionally snails.

"We had a bit of a mouse problem in 2009, when they were looking for feed in the dry conditions, but we controlled them with bait and haven't seen many since.

"Snails have popped up from time to time, particularly in the canola, but we haven't seen any slugs for many years. We sieve our canola to ensure we eradicate any snails."

Bill also likes to apply gypsum on the canola paddocks and single superphosphate on the pastures to ensure healthy crop growth. He says gypsum also helps improve the soil structure of hard-setting soils.

"We apply gypsum to the canola at a rate of 1 t/ha in the autumn months pre seeding. We also use single super on the pastures, which tends to stimulate and enhance plant growth.

"Our main soil type is a hard-setting red brown earth, which responds well to gypsum. We started spreading gypsum

almost 30 years ago and have seen huge improvements in the quality of the soils in that time."

A mixed farming approach with sheep as the livestock means Bill is able to value-add oats and barley he produces by storing it on-farm and using it as supplementary feed for the stock.

"The sheep are useful for the non-arable hill country and for grazing stubbles prior to the next crop," he said. "They have improved the overall profitability of farm and help break up the continuous

cropping program.

"We have increased our on-farm storage from 100 to 200 tonnes in the past decade to ensure we have a good supply of feed for the sheep. In some years we might store some grain to sell, but we really only have on-farm storage to hold grain for feed use."

With no children to take over, Bill plans to scale back on the cropping enterprise and focus on sheep in the near future. He says the past 10 years have been up and down in agriculture, and things are constantly changing.

"We have had some really tough years of late, with drought and unsteady markets. Profitability and the scale of profit is a major concern in farming these days. When my father managed our farm his gross profit was more than 25% of his income. These days you're lucky to get 10% of your income as profit. We are producing more than we used to and turning over a lot more, but the bottom line is not as good as it used to be.

"People still need to eat and populations are growing, so there is a need to produce safe food in this country, but we have to keep adapting to weather, markets, and trends.

"I can't see the corporate businesses taking over completely, simply because they won't be able to see out the bad years with low profitability.

"I am not sure what's around the corner, it could be controlled traffic and more advancement in technology. We will have to see."



High quality, low maintenance, heavily constructed No-Till Seeder, sizes ranging from 20ft-66ft. Fitted with New Baldan 20" single disc row units.

Grow better crops with uniform sowing depth through the heaviest stubble.

NEW SB2013 ROW UNIT

- * New design, low maintenance
- * 20" disc for deeper sowing and longer life
- * 6" spacing available for pasture crops
- * Superior seeding in all conditions
- * Fast depth wheel adjustment
- * Easy replacement of discs

Serafin MACHINERY

1300 737 586
www.serafinmachinery.com.au

