

# MAINTAINING PROFITABLE FARMING SYSTEMS WITH RETAINED STUBBLE

Rob McColl



Canola stubble only receives treatment if pasture is being sown. Here the paddock was disc chained prior to being sown with harrows to assist with pasture establishment.

## Eye on establishment

**Successful crop establishment is the principal goal of Rob McColl's stubble management program at Bobbara.**

Rob McColl has been the Cropping Manager – and now Manager – of the iconic Bobbara Station at Galong for the past 15 years, but his history there goes back much further. Rob's father Neil began managing the property for the London-based Portman Family Estate back in 1991, so Rob has witnessed – and been responsible for – the evolution of the 4600ha property over several decades.

Bobbara sits among the undulating hills of the NSW south-west slopes, and is a mixed farming enterprise. The property has 1500ha under crop, growing wheat, canola and a bit of barley, and the remaining country carries 8200 first-cross ewes and 600 Angus-Wagyu cattle. Bobbara was purchased by Chinese firm Union Agriculture – a subsidiary of Hebei-based Jiahe Brewery – in 2013.

Rob's approach to stubble management focuses on successful crop establishment as its main goal. He runs a simple wheat-canola-wheat-canola-undersown wheat rotation and he knows from experience that subsequent crops do better if he applies different treatments to the wheat and canola stubble prior to sowing.

Canola stubble is always left standing. He says they have never had problems getting through it with their machines, and the wheat that follows, being robust, is always able to germinate and survive.



PHOTOS: SARAH CLARRY

### SNAPSHOT

**Property:** Bobbara

**Location:** Galong, New South Wales

**Farm size:** 4600ha

**Annual rainfall:** 620mm

**Altitude:** 500-750m

**Soils:** sandy clay loam

**Soil pH:** 4.5-5.8

**Enterprises:** Wheat, canola, barley, 8200 first cross ewes to produce second cross lambs, 600 Angus-Wagyu cows.

**Rotation:** Canola-wheat, canola-wheat, canola-undersown wheat

**Equipment:** 12m John Deere Conserva-Pak 308mm with 70mm paired row, 9330 John Deere Tractor, 30m 5300L Goldacres Boom, 8285R John Deere Tractor, Brookfield Disc Chain 13m

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This paddock received 2.3L/ha of Yield® and 2L/ha of Gramoxone® pre-planting to wheat undersown with clover + chicory and lucerne.

Once canola is windrowed, the canola stubble receives no further treatment. At 308mm, the row spacing Rob uses is relatively wide for the region and environment in which he is cropping, but he chose it because it allows him to handle the canola stubble without harrowing.

When sowing canola into wheat stubble, however, he takes a different approach. Canola represents nearly 50 per cent of the cropped area at Bobbara and in the past, Rob has experienced a lot of issues in trying to establish canola in standing wheat stubble.

"Our biggest issue is the cold. The stubble shades the soil and the sun doesn't get through to the plants," Rob says. "We've also found that it hosts slugs and earwigs, mites, lucerne flea... anything that wants to chew canola will always be worse in patches of stubble."

To deal with these issues, Rob always does a late burn of wheat stubble – in early April – just prior to seeding canola, keeping cover on the ground as long as possible to conserve moisture and nutrients.

## WEED MANAGEMENT

Autumn rainfall is very unreliable in this region, and so it is imperative to

conserve as much moisture as possible over the summer. As is the case for many southern growers, summer fallow weed control is now a top priority for Rob.

Resistant ryegrass is the biggest problem he faces on the weed front, but he has worked hard over the past few years to drive the seed bank down with an integrated weed management approach.

"Over the summer and autumn, we use a disc chain for some cultivation, double knock with Roundup® and Gramoxone®, then following the withholding period, graze the stubbles," Rob says.

"We bought a new boom spray with a larger volume tank so we can spray at higher rates to better penetrate the straw. We always use robust rates of chemicals. By spraying into the line of the stubble, rather than across it, we know it's going down and into the row."

Once the stubbles are burned just prior to sowing, Rob applies Atrazine and Treflan® and incorporates it with a disc chain. Because there is a boom spray on the disc chain, they are able to do the whole operation in one pass.

"It gives us a double knock in the form of the cultivation, so we are mechanically chipping out weeds," he says. "And by applying Roundup® then going back with

the disc chain and applying Treflan®, we're not compromising either the Roundup®, which needs up to an hour to dry before sowing, or the Treflan®, which needs to be incorporated within four hours."

## STUBBLE HEIGHT

Because Rob has made the commitment to burning wheat stubbles, they can cut it high at harvest and increase their harvest efficiencies as a result. With canola stubble, however, he is somewhat restricted.

"We can't cut it too low because it won't fit through the windrower. We have to cut it relatively high to get some harvest efficiency," he says. "That's one challenge we are facing: we need to start cutting it a bit lower or we need to have shorter canola varieties again. If it is too high, we can get problems at sowing time."

The harvester they use at Bobbara has a 13.7m (45 foot) front, which Rob says results in a lower stubble height.

"Because we have so many hills, the header front wants to come up out of the crop, so we end up cutting it shorter than we would if we were using a conventional tin front," he says. "But that's fine; it still burns."

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## NUTRITION

Rob has a standard approach to crop nutrition that involves 90kg per hectare of MAP at seeding on all crops, which acts as a phosphorus replacement system for what the crops are taking out, as well as 50 kg per hectare of urea. If the season is good enough, they may also topdress urea later on.

They conduct deep N soil tests around the end of May each year and match the results to yield potential. They also test for sulfur for the canola. If sulfur is lacking, they will spread it along with urea on the canola in early July. In wheat, the topdressing occurs a month later, in August. Depending on the soil test, it could be anything from 0 to 150kg of urea per hectare.

Rob also has a liming program. When a paddock comes into the cropping rotation, they conduct soil tests at 0 to 10 cm, and 10 to 20 cm, and lime accordingly. They aim to maintain a pH of 5.5-5.8 (CaCl), which is the optimal figure to get them through the five or six-year crop phase.

Recently Rob has revisited this strategy and is now considering a blanket lime application at the start of the cropping program and then again at the end, applying lime at a variable rate before it goes into pasture.

"Once we have four or five years of yield data, we can soil test," Rob says. "If we find we have some correlations in yield data over those five years, we can break it up into management zones and soil test on those zones. Then, possibly, in the last year of crop, apply variable rate lime, which may help extend the life of our pastures."

Rob's thinking behind this strategy is that if the paddock comes out of pasture and receives lime, by the time it is cropped for six years and put into pasture for another four or five years, 10 to 12 years have gone by, and the pH is falling or aluminium is starting to rise.



Wheat stubble is burned to give the canola that follows the best chance of establishment, while wheat, being more robust, is sown directly into standing canola stubble.

"The pasture will be wearing out by then," Rob says. "I think we should be topping it up with lime a little bit earlier to give it more longevity and quality. It costs more than \$100 a hectare to plant pasture – it's a big investment – so I think it will be worth doing."

The focus on pasture performance extends to the timing for bringing a pasture back into crop. As a general rule, a paddock will be under pasture for five or six years, but they still assess them each year to work out which ones will be sprayed out in the spring and brought

back into crop.

"We want to get to a point where we're actually spraying out pastures that are still performing well rather than ones that are slipping, because once they are slipping, they're not performing at 100 per cent. In other words, you're not getting the most out of your paddock – you're losing stocking density."

## GRAZING MANAGEMENT

The considerable cost of sown pastures is one of the reasons Rob utilises his stubbles for grazing.

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Paddocks are currently limed when they come into crop, but Rob is considering adding a second lime application when the cropping phase finishes, to improve the longevity and quality of his lucerne-based pastures.

"We try not to overgraze our stubbles but sometimes it provides a good opportunity. You can keep your stock off a pasture that has cost you a lot of money to establish, but which may not be growing because it hasn't rained," he says.

"You still need to feed your stock, so you can put them on a wheat stubble and avoid overgrazing your pastures. And the research suggests that grazing stubbles is not as bad as first thought."

Rob has 400ha of grazing crops and he has stock on them all winter.

"Cattle can pug up the soil pretty well, which is why we use a tine machine rather than a disc," he says. "We need the tine machine to rehabilitate the soil from livestock damage. If we were 100 per cent cropping with no livestock, I would consider a disc machine, but because we've got livestock in the system, we stick with a tine."

## LEARNINGS

Rob says the past 20 years have delivered "endless lessons" but one of the biggest things has been the value of fallow spraying.

"We try to have the paddock ready to sow the month before we actually sow it," he says. "Ideally we don't want to be sowing a green paddock (i.e. a paddock covered with small weeds). You need to preserve the moisture and nitrogen and all

the other nutrients that would otherwise go into growing weeds."

He also cites canopy management in wheat and canola, and late-season fungicide sprays.

"Prosaro® on canola has worked every year for us here and returned a lot of money, up to six times what it costs us. It's great because canola is the only break crop for us. We wouldn't grow any other."

Rob obtains his information from a range of sources, such as James Cheetham, his consultant agronomist from Delta Ag, and GRDC's *Ground Cover* magazine. He is also a member of FarmLink where he has access to local research and a network of other farmers. He operates a contract farming and management business in the district as well, which gives him the opportunity to see a range of farming methods.

He is also happy to host trials on the property, although he does not get directly involved.

"I like hosting trials because they can provide relevant data from our neck of the woods," Rob says. "That information then makes it through to my agronomist and, eventually, back to me."

In addition to his management role at Bobbara, Rob and his wife Joh have their own farm at Boorowa. The property was 100 per cent set stocked with livestock when they bought it, and they have

converted it to a mixed operation with dual-purpose crops, and they trade lambs and cattle.

"We have started sowing one paddock down to pasture each year," Rob says. "So I think in four or five years, we'll have some good perennial pastures and a better crop rotation there."

## MORE INFORMATION

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