BioAg Case Study

Pasture and Grain – Trangie NSW

Brabrook Family | 'Tallengar', Trangie NSW

An on-farm trial conducted by central NSW lamb and grain grower, Wayne Brabrook, has conclusively shown that a revolutionary biological soil nutrition program represents a real and profitable alternative to conventional techniques.

Adopting the program four years ago, Wayne has seen the gross margins from his lamb fattening and cropping enterprises soar to $646 per ha and $423 per ha, respectively.

The Brabrook family – Wayne and his wife, Narelle, and Wayne's parents, Victor and Colleen – operate a mixed farming operation on two adjoining properties, 'Tallengar' and 'West Harnham', in the Trangie district.

Depending on the year, 60 percent of their 1,200 ha aggregation is sown to wheat, barley, oats and lupins. In addition, they buy up to 7,000 first and second-cross lambs each year which are grown out to 45-55kg on lucerne pastures and cereal stubble.

Wayne began exploring alternative farming systems about six years ago. "Our soils, which had no humus or organic matter, had become hard and crusty, while our input costs were outstripping everything," he said.

BioAgFertility Specialist, Andrew Watt,inspects a wheat crop grown by WayneBrabrook at "Tallengar", Trangie, NSW

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"We were pouring on up to 70-80kg per ha of urea and various fertiliser blends but our yields were going backwards and our weed problems were getting worse. We'd heard about biological nutrition programs at a field day and we decided to see if they worked."

In 2002, he set up a trial using BioAg's *BioAgPhos*®, a reactive phosphate rock treated with a proprietary microbial culture. About half of the 15 percent phosphorus content is available immediately for plant use, while the remainder is slowly digested by the microorganisms and added to the nutrient reservoir in the soil.

The improved soil microbial activity is also claimed to help unlock phosphorus, calcium and sulphur already in the soil, leading to long-term benefits in soil structure and fertility.

Wayne fenced off three adjoining 20 ha blocks in a paddock that had grown canola the previous year and was infested with capeweed and wireweed. The first block received 80kg per ha of *BioAgPhos*, 250kg per ha of lime and 80kg per ha of sulphate of ammonia a month before being sown to Yarran oats at 45–50kg per ha. At sowing, it received 25kg per ha of monoammonium phosphate (MAP) and 3L per ha of BioAg *Soil & Seed*™, a liquid treatment which encourages rapid germination, root development and soil microbial activity.

The second block received the same treatments, but at half the application rates. The third block acted as a 'control', receiving 50kg per ha each of the conventional fertilisers, urea and MAP, at sowing.

The results surprised Wayne and even the BioAg team. "The response from the first block was unbelievable – we put 1,200 lambs onto the block when the oats were 30cm high and they grazed it for a month," Wayne said.

The lambs were very contented. They were full and had gone back to their camp by eight or nine o'clock. By comparison, the lambs in the second block were still foraging well past 10 am and the feed lasted only a fortnight. The lambs in the conventional block only lasted one day. They refused to eat it.

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Subsequent plant analysis conducted by BioAg revealed that the conventional oat plants were quite bitter, being very high in potassium and low in sugar. By comparison, the oats grown with BioAg products had nearly five times as much sugar and were sweet and palatable.

Wayne said there was also a noticeable difference in root development. "The plants in the conventional block had root systems the size of cricket balls while those in the biologically-farmed block wouldn't fit in a hat," he said.

After 33mm of rain fell on the oats, Wayne sprayed the biologically-farmed block with 4kg per ha of calcium nitrate and 1.6L per ha of BioAg *Balance & Grow*®, a foliar treatment which provides growing crops and pastures with nutrients that stimulate vegetative growth and improve soil microbial activity.

He repeated this after a second lot of rain, while after a third fall he sprayed the block with a small amount of urea mixed with 1.5L per ha of BioAg *Fruit & Balance*™, a foliar treatment which delivers a rich source of nutrients to enhance yield and quality. The oats recovered rapidly after each treatment, keeping the lambs in feed.

When harvested, the biologically-farmed block yielded 1.3t per ha compared to 0.t per ha from the second block and just 0.3t per ha from the conventionally-grown oats.

Wayne estimated he earned $1,000 per ha more from the BioAg block compared to the conventional one, even after input costs.

Astounded, he has since implemented a full biological soil nutrition program across the whole property. The rates and treatments vary from paddock to paddock but typically each autumn the cropping country receives 80kg per ha of *BioAgPhos*, 250-300kg per ha of lime and 80kg per ha of sulphate of ammonia. At sowing, 3L per ha of *BioAg Soil & Seed* and 20kg per ha of MAP is applied. The crops are sprayed with 1.4-1.6L per ha of BioAg *Balance & Grow* and 4kg per ha of calcium nitrate at mid-tillering or after grazing. In addition, they also receive 1.4-1.6L per ha of BioAg *Fruit & Balance* and 4-6kg per ha of urea later in the season if conditions are suitable.

Wayne said the program had transformed the hard red sandy clay soils into a rich 'potting mix' that retained moisture, while the improved microbial activity in the soil had improved the availability of existing and applied nutrients. A hard pan 100mm below the surface had all but disappeared and there were fewer weed problems, which are now controlled using cultivation in preference to herbicides.

The revival of 'Tallengar' and 'West Harnham' is all the more remarkable given that it was achieved during one of the longest and harshest droughts in Australia's history

His crops were growing faster, were barely bothered by Stripe rust or Take-all, and were producing better quality grain.

"Last year's wheat crop recorded 16.4 percent protein with no screenings, while our barley yielded 3.7 tonne per ha and had protein levels between 12 and 13 percent, pushing some of it into malting grades for the first time.

"The malting barley fetched $155 per tonne, while the feed barley fetched $125 per tonne. Against this, it cost $150 per ha to grow. We also fattened 750 lambs for eight weeks on 30 ha of oats. "They gained 1.6-1.8kg per week off pastures, which is almost as high as a semi-feedlot situation. After $154 per ha in costs, the lambs netted $15,000 and the oats went on to produce 2.5t per ha of grain which sold for $9,000."

The revival of 'Tallengar' and 'West Harnham' is all the more remarkable given that it was achieved during one of the longest and harshest droughts in Australia's history. "If we weren't implementing this biological program, we would have had crop failures for sure," Wayne said. "And we didn't have to order any new machinery apart from the belt spreader we use to spread the *BioAgPhos*, lime and sulphate of ammonia."

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