

LIVESTOCK

Bio the way to go in SE

5 Critical Factors

- 1 On-farm trial shows benefits of biological fertilisers
- 2 Biological paddock had more friable soils with faster water infiltration rates
- 3 Higher-quality pastures support higher stocking rates with more grazing days
- 4 Improved production makes up for higher input costs
- 5 Greatest response on problematic paddocks or in conjunction with pasture renovation

By CATHERINE MILLER

WITH the interest in to conventional fertilisers plateauing after more than 40 years of single-super application, Hillcrest Pastoral Company business manager Bruce Creek was looking for a more sustainable option.

And after a three-year, on-farm grazing trial at Avenue Range in the South East, in conjunction with LawrieCo, he is confident he has found an alternative.

In February this year, Hillcrest Pastoral Company applied LawrieCo BioGraze to about 5263 hectares on its five properties.

The trial, established in 2009 with Lawrie Co sales manager Ryan Walker, compared a 35ha paddock treated with LawrieCo biological fertilisers on an adjoining 45ha paddock of single super for two years.

In the final year, the conventional paddock was treated with BioGraze instead of single super.

The results showed a clear difference between the biological and conventionally-treated paddocks in soil and tissue testing, and between pasture quality with feed tests and stock analysis through weight-gain trials.

The biologically-treated paddock had healthier, more productive pastures which persisted longer during the season and delivered higher average weight gains, particularly in the first year in Hillcrest steers – 225 grams a day over a 53-day period.

In subsequent years, there



BIOLOGICAL ANSWER: LawrieCo sales managers Ryan Walker and Peter Davidson with Hillcrest Pastoral Company business manager Bruce Creek inspect a paddock newly-renovated with three years of biological fertilisers at Avenue Range in the South East.

was still a noticeable difference at 51g/day and 80g/day.

There was also evidence that the application of biological agents had unlocked previously unavailable phosphorus.

The biggest response was in the newly-renovated paddock where soil P levels increased from 84kg/ha in 2009 to 117kg/ha in 2011.

Another major difference was the faster infiltration rates.

The initial water infiltration experiment in 2009 was stopped at 150 minutes, but in 2011 it took just 20 minutes for water to infiltrate to a depth of 50 millimetres.

Bruce was “very pleased” with the biological response in the soil and pastures.

“We are producing grass all year round and any summer rainfall is more useable because it soaks through the soil rather than running off,” he said.

“In the paddocks you used to put the shovel in and it would just about break the shovel off, but now it is friable and not much work at all to break up the soil. We were able to direct-drill in the new pasture where we would have normally worked it a number of times,” Bruce said.

Economically, he acknowledges that the biological program is more expensive with the bioproducts costing an extra \$55/ha a year over the three-year period compared with the single super.

But the extra weight-gain accounted for nearly

\$30/ha/year and the biopaddock had a higher average dry sheep equivalent of 132,000 despite being 10ha less than the conventional paddock.

“When we started we had the millionaire’s recipe and the standard recipe but we have shown the millionaire’s recipe is a really good tool for correcting problematic paddocks or newly-renovated paddocks and the spend is not much more,” Bruce said.

He says participating in the trial is about coming up with a more sustainable approach and the results made sense.

“You are what you eat. Healthier soils should produce healthier pastures and healthier animals,” he said.

Ryan says LawrieCo had visually observed many of these nutritional benefits with other biological fertiliser users but it was exciting to measure the differences in a grazing situation for the first time.

“We have consistently seen that where we get the nutrition right in the plant, we are seeing higher brix readings indicating higher-quality pasture and generally more pasture production,” he said.

He says the release of LawrieCo’s BioGraze three years ago had given farmers a biological option at a similar cost to their conventional fertilisers and sales had “taken off”.

The granular fertiliser has phosphorus, sulphur and calcium but also humic/fulvic to pro-

Inputs

Biological paddock

Autumn 2009

■ 400 kilograms a hectare of LawrieCo BioLogic Prescription blend, and 13.2 kilograms of trace elements.

■ The humate-based BioLogic Blend comprised colloidal based soft rock phosphate, copper, zinc, manganese, iron, cobalt and molybdenum.

■ 1 tonne/ha lime and 0.5t/ha gypsum

■ Spring 2009-Foliar spray was applied including 5 litres/ha of Biologic Growth (nitrogen, phosphorus, potassium and kelp) and 3L/ha of soluble boron and manganese sulphate.

2010

■ Foliar application in spring

2011

■ Biograze

Conventional paddock

2009 & 2010

■ 100kg/ha single super

2011

■ LawrieCo BioGraze

mote biological activity, and trace elements, and is put out at similar rates to single super, 100-150kg/ha.

“It proves you do not need to spend any more money than your single-super bill but it is easy to see phosphorus and sulphur alone is not the answer,” Ryan said. “You need a more balanced biological approach with humic/fulvic and make the nutrients more available to the plant.”

MyTake



with JOEL WILLIAMS

Biological Fertiliser Association

Overview:

Biological fertiliser is a broad term encompassing a range of naturally occurring compounds or living organisms all with an organic (carbon-based) origin. These materials can include beneficial microorganisms, enzymes, amino acids, proteins, vitamins, plant-derived compounds or organically derived minerals.

The good:

Soil microbes play a key role in defining a healthy soil and they feed on carbon compounds. Incorporating biofertilisers into the management program increases the amount of carbon entering the system thereby providing more food for soil life. When combined with inorganic inputs, carbon based materials can buffer negative effects of inorganic fertilisers. Biofertilisers are often derived from naturally occurring and renewable sources and hence are considered to be a more sustainable option.

The bad:

The efficacy and consistency of biofertilisers that contain living organisms is strongly influenced by management and environmental factors. Living organisms respond to various external factors differently, and as a result their effectiveness can vary with each scenario. The activity of many of these beneficial microbes is suppressed by conventional management practices, so a modification of management practices is required.

The way forward:

Soil organisms play a key role in soil health and soil carbon sequestration, and farming systems that support these living processes have great potential to store stable forms of carbon in agricultural soils. This provides the dual benefit of climate change mitigation and increased soil health and production with higher organic matter soils.

My top 5 tips:

1. Biological farming is not just about bio-inputs – it is a systems approach to farming working within the paradigm that soils are alive.
2. The use of any biological fertiliser must be considered within the whole system – all inputs have an ideal time and place and may not be required outside of this guideline.
3. Organic inputs buffer inorganic inputs, so all fertiliser applications (solid or liquid) should always be combined with a carbon source.
4. There is no silver bullet. No one product, compound or nutrient is more important than another.
5. There is still much to learn. There has been abundant interest and research into soil biology in recent decades from all around the world. As our understanding of soil biology increases we can become more and more targeted with the use of biological fertilisers.

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