BioAg
Biological Solutions

# Frei Dairy
# Riversdale, Southland, 2014

At Adrian & Isabel Frei's farm at Riversdale, Southland, more seasons have now been added to the BioAg proof-of-concept case study which began in 2009. And that's interesting because he's a farmer who's dedicated to his soil — the beginning of the Frei Dairy study came as the farm moved from a more mainstream approach to a more biological farming approach using the BioAg soil and pasture fertility system.

Adrian and his wife Isabel came over from Switzerland '19 seasons ago,' as he says. He began commercial life as a cabinet-maker but made an early switch to agricultural college to become a dairy farmer. He worked wages here, initially, then moved to farm management, and finally share-milking, to the jump-off point of buying his own farm. He and Isabel have five children, a girl and four boys.

The case study which ran for three seasons coincided with Frei Dairy being one of the benchmark monitor farms for Dairy NZ's Southland Demonstration Farm. The purpose of the POC study was to demonstrate that a conventional mainstream dairy system could adopt a biologically orientated soil and pasture fertility system and maintain production levels while at the same time improving fertiliser N efficiency and overall feed efficiency i.e. dry matter to milk solids.

The milking platform is 185ha but Adrian points out that there are always a couple of paddocks out for grain for whole crop silage plus all the heifers and calves are at home too.

The DNZ classification system defines five farming types, from grass only to all-year imported feed. Frei Dairy is system 2 which covers low level supplementation with cows wintered off. Frei Dairy is summer dry, no irrigation, with a 78ha runoff. Any imported supplement is limited to molasses or distiller grain syrup in the cold springs.

'It's an all grass farm, a self-contained unit. We make all our own winter feeds, with the winter diet made up with whole-crop silage, grass silage and hay with a ratio of 50/40/10' he says.

Adrian is very focused on the relationship between pasture type and soil, with clover as the fulcrum: 'And it's not just the BioAg programme' he says 'it's what we sow as well — up to ten different species.

'I'm a big fan of tonic plantain, chicory, two kinds of white clover, red clover and I'm probably going to try Persian clover, add cocksfoot varieties and so on. I like a broad spectrum mix.

'Last year the average pasture was 70 percent clover and I really like that. The cows milk well on it, we don't get any bloat problem — my last treatment was probably ten years ago — and we're on a low stocking rate, around 2.1 cows per ha, so they do very well.

'Also different plants have different strengths. Tonic plantain for example is a plant which grows when it's dry and it creates a lot of calcium and magnesium — 2.5 times as much as ryegrass — so once your soil is balanced you want to get as many minerals into the pasture as you can so you don't have to feed it out of a bag.

‘Our soil programme ideally starts in August. This year it’s been very wet — the worst start we’ve had in 16 years — so we’ll have to defer until it’s a bit drier. Because we want the whole area done in a short time we spray the Soil & Seed on with the helicopter at a rate of between six and eight litres per ha, though now we’re in year six (of BioAg) it’s reducing. Then in November we apply 2.5L of the foliar spray Roots and Shoots by our tractor-towed spray unit, sprayed a day or two behind the cows. We come back again in autumn to feed the soil.

‘We’re on quite low fertility soils here but we’re working on bringing up the levels P, K and trace elements. We’re using activated RPR and potassium sulphate. No soluble P’

Asked if the soil structure has changed consistency over the years Adrian replies: ‘I would say the soil has become more porous; it breaks apart easier, has got more life. Worm numbers are up. I notice when we’re ploughing after the turnips for the winter wheat crop that the soil is breaking apart nicely with around five to six percent organic matter.

‘I think we’re building up because we’re not using a lot of nitrogen, just a bit — 10 to 21 units per year — using either a little calcium nitrate or SOA.

‘So we’re not really breaking nature’s carbon cycle, not raping the soil by burning out the organic matter. And that’s the whole idea of biological farming: making the most of what you’ve got in your soil, and making it available.

‘We farm on 300mm of topsoil over clay so it is prone to pugging. The first thing I did when I came here was build a wintering shed so everything is inside from the end of May until spring. We’ve removed winter soil problems such as pugging, we don’t grow any brassicas, all the ground is covered.

‘In the summer dry we grow 13 ha of turnips ready for the Jan/Feb/March period, and we’re planning on extending our duck pond which I can use to irrigate a few hectares. That will give me good summer crops and reduce supplements.’

Self-sufficiency is the key to Adrian’s farming on other fronts too: he points out that while contractors come with bigger, faster and more efficient machines, the cost is significant.

‘When I make hay I can mow it, ted it, rake it, dry it and I only have to get someone to come in and bale it. We can make good quality hay most years.’

Adrian pushes the replacement rate to the maximum as some animals are destined for export: ‘If we don’t want to grow any more, then 20 percent would be more than enough. At the moment we’re up to 28 to 30 percent because we want some surplus, using purebred Friesian bulls through to the end of September, for the China trade.

The Riversdale fertility regime is six weeks of AI and then the bull. ‘Our average empty rate is between five and seven percent’ he says. ‘We use CRV-Ambreed. It’s a good service and we’re happy with them. Over the past five years we’ve been using their young sire proving scheme. It’s very cost-effective.

‘We feed BioAg’s RumiMate to the young calves, into the milk every day, and feed it to young stock every month in the water troughs. We cut out as many drenches as we can, so we’re not doing a routine drenching. And for lice I use a homeopathic treatment from Homeopathic Farm Support called Pediculli.’

Adrian first encountered BioAg at the National Field Days in 2009. ‘I was looking for a treatment for my effluent ponds, so they stay active and don’t build a big crust. BioAg were selling their DFD product. And there was a competition with the slogan — “Give me a good reason why we should give you product worth five thousand dollars, and you might win.”

‘I was wanting to try a few new things on my farm. And I won it! ‘We started with the effluent, as a test, then the soil treatment.

‘I’m very happy with the results.

‘It’s like a spiral, I think. In New Zealand we’ve been intensifying, using more synthetic fertiliser, more urea, more and more feeding. It’s the wrong way in the long term. I wanted to go back to the basics and not rely on imported feeds and those fertilisers.

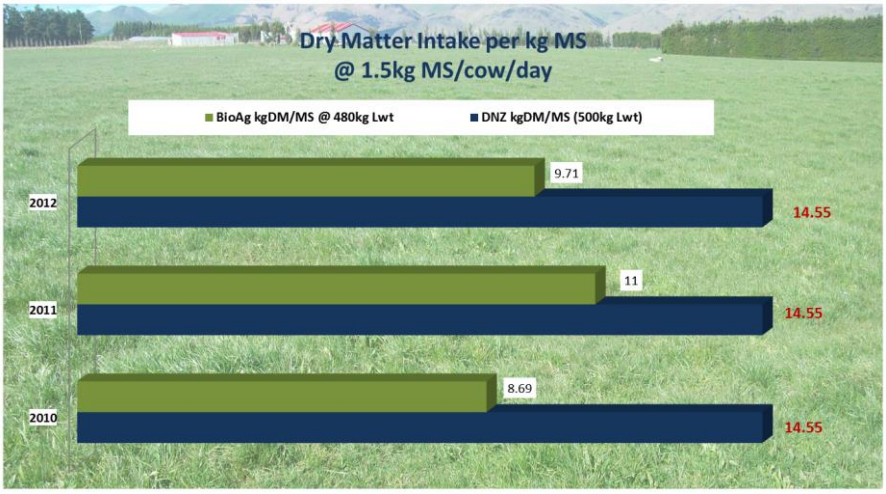
‘Biological farming came up and I just jumped in, from one day to another. I cut out the urea — I’ve never been an extreme user. We’ve got enough knowledge not to go overboard, just trying to squeeze the last of the goodness out of the ground.

‘It all starts at the soil level. If you balance the soil, if you get it active, you’ve got the worms, the microbes working for you, then most of your system is working automatically.

‘The cows here produce good milk, milk urea levels are reasonably low, they don’t get bloated, they don’t have hoof problems, fertility is good because they’re not just being pushed one-sided. Mainstream farming is unbalanced.

‘We’ve got virtually no metabolic problems, very few lame cows, perhaps only five or six in a good year.’

As for the case study results the farm achieved a 70 to 80 percent reduction in N applied, averaging 11kgN/ha/season. No urea or DAP has been used since 2008/2009 season. Milk solids per hectare and per cow were maintained and feed to milk solids efficiency 50 percent higher than Dairy NZ guidelines (Facts & Figures publication) were recorded. Total DM intake per cow for the three seasons averaged just 4.1t to achieve close to 420kgMS/cow or 9.8kgDM per kg/MS.




Milk yields reached 440kg last year, a good jump from the year before and even further from the case study figures which represented a 416kg/year average.

Asked if they could go higher: **‘**Our aim is to optimise milk yield in our low-cost system. A good season might add another 10kg in milk solids but my dream of hitting the 500kg mark is probably only fantasy.

‘Also if you start milking on August 10 and go through to May, that’s enough for everybody — the cows and us too’ he says, adding that when he was a share milker he was faced with the prospect of milking more and more cows.

It wasn’t his kind of farming.