

NZ GRASSLAND ASSOCIATION

Fuelled by Science, Tempered by Experience

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Thoughts from the President

Jacqueline Rowarth

Innovation appears to be THE WORD – still. While most of us know that it takes a huge amount of knowledge, particularly in and from people at the coal face, others in high places continue to mistake flair for innovation. The new super-ministry, encompassing The Ministry of Economic Development and The Department of Labour (as well as the Ministry of Housing), is a case in point. The Ministry for Business, Innovation and Employment, doesn't mention the words 'science' or 'research' at all. Yet it is the interaction between practitioners, industry and research in the biological economy that keeps New Zealand ticking. And growing in terms of the economy.

Information transfer goes in many directions. Ripples spread from 'over-the-fence', or from field days/seminars, but there is also the 'coalface' concept – and that is vital for the incremental innovation that underpins most advances in efficiency and productivity.

A KPMG-Australia report on Understanding Innovation published earlier this year has shown that incremental innovation is usually driven from inside the organisation, bottom up and is successful when management enables the coal-face workers to achieve.

The coalface workers are the milkers, shearers, drenchers and drafters. They are also the scientists doing the experiments and trials. They are the people who know the problems and think, every day, how they can do the job better. Innovation, grounded in coal-face problems and resulting from solid research, is the feature of the NZGA conference in November. The Executive has already put the pro-

gramme together to include policy, significant issues for the farming sector, and hot topics for the future. The Local Organising Committee, under the leadership of Nelson and Fiona Hancox, is developing the field days and tours. Of course it promises to be another great conference, and of course you should be there – 6th-8th November in Gore.

Before then we have another hotspot for innovation – the Mystery Creek Field Days. The theme this year is The Changing Face of Agriculture, and whether technology, ownership, landuse, gender or ethnicity is being considered – the fact is that they are all combining to mean extraordinary changes. Set within the general urban confusion about what it takes to farm, while the demand for food continues to increase, Mystery Creek is an event not to be missed. It provides an opportunity for information exchange at all levels, and as school children and non-rural parents are present, it can make a difference to understanding. This year there are an increased number of talks aimed at informing and generating discussion.

Perhaps of even more importance members of NZGA, is that events that bring people together lead to information exchange and stimulate new thinking and different approaches. They lead to innovation.

New Zealand science is vital for New Zealand – the environment and economic development depend upon it - but science needs the eye of the expert practitioner at many stages: the farmer at the coal face can assist with identifying the mother lode. See you in Hamilton and Gore and all agri-events in between...

Castlepoint Station wins Keinzley Agvet Wairarapa Sheep & Beef Farm Business of the Year

A field day at Castlepoint Station celebrated their winning the 2012 Keinzley Agvet Wairarapa Sheep & Beef Farm Business of the Year. There was a very strong NZ Grassland Association presence on the day. The owners, Emily and Anders Crofoot, are members of NZGA (Anders is the immediate past president). Warwick Lissaman (vice president), lead a large contingent of people from Marlborough and Derrick Moot and Dick Lucas came up from Lincoln.

Three hundred and forty people gathered at the Otahome (south) end of the property for introductory remarks. The first stop on the ocean terraces was next to sixty hectares of lucerne, which the Station started using eight years ago. Ryegrass was not performing on the coastal terraces so trial paddocks were sown with lucerne and tall fescue, the hope was that the deeper rooting habits would allow better growth in the summer dry climate. Both tests were success-



NZGA celebrates 80 years

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ful and thirty hectares each of lucerne and fescue were established. When manager Stu Neal arrived from Marlborough his expertise in managing lucerne led to the expansion of the lucerne area replacing much of fescue on the terraces. Derrick Moot spoke on ways of introducing legumes into hill country and the value of getting higher ME feeds into the hills. He has been working with Castlepoint not only on their lucerne but other clovers that might work on the hills. There is currently a trial of prima gland clover on an undeveloped cattle block.

At the second stop, on the alluvial flats, the nitrogen trial that was done at Castlepoint (NZGA paper in 2010) was reviewed as well as other R&D projects and the livestock policies. The third stop, on the airstrip, was supposed to go over marketing, animal health, farm development and the pole planting programme for erosion control, however the weather finally broke and rained us off the hill. So it was on to the old woolshed for lunch and the afternoon programme and we were joined by another sixty people.

In the afternoon the topics missed at the airstrip were covered as well as a variety of others: web based staff communications (wiki), best practice for OSH, biosecurity and reporting, monitoring and EID, a financial analysis of the op-

eration (very good performance given the Station doesn't produce much over 5 tonne/DM/ha in an average year), community involvement, governance and succession.

The NZGA has had a strong influence on operations at Castlepoint going back to trial work done by Simon Maloney and others. It will continue to be where we look for the latest information to further improve our performance.



The Biological Farming Debate

Bruce Thorrold, DairyNZ

(reprinted from 'Inside Dairy, Dec 2011)

I spent a day last November at the first National Biological Farming Conference. You might have seen me reported as saying that DairyNZ welcomed the debate about different ways of farming and nutrient management.

Well we do welcome the debate – in part because fertiliser management has fallen off the radar lately as more pressing issues such as effluent and pasture persistency have taken centre stage.

By opening this topic up to discussion we can take another look at the key principles of fertiliser management, keep updated on any new developments in science and evaluate whether we need to make any changes on-farm because of changes to the system.

What I have yet to see reported were some of the other comments I made about biological farming and fertiliser management.

All dairy farming in New Zealand is based on biology. The vast majority of New Zealand farmers, scientists and agribusiness people acknowledge and support the importance of soil biology and physical structure in efficient and sustainable farming.

The term 'biological farming' has been adopted as a generic brand by companies marketing products and services to farmers. It seems to be defined as a system that aims to build soil biology with an expectation this will lead to good results – which poses the question, will the products and practises advocated and sold achieve these results?

To me, there seems to be three main ideas or product

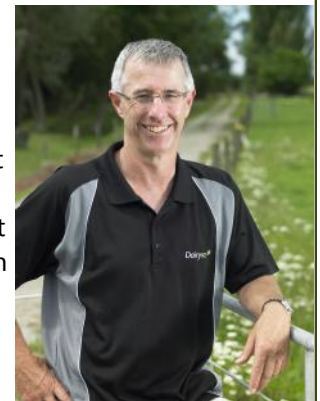
groups in biological farming.

The first is an idea to reduce inputs of soluble fertilisers. For many high feed input farmers, a nutrient budget would show that reducing the use of fertiliser is the right response to balance out the amount of nutrient coming in the gate in feed. We have seen farms that need no additional phosphate or potash inputs. This includes reducing urea use.

Biological farmers comment they have reduced urea use and seen clover content increase and pastures improve. These observations don't require a new principle of soil science to explain – high N inputs will suppress clover (and some of these farmers have been using over 200kg N/ha along with bought in feed), and this will be made worse if pasture management is lax with high residuals.

So taking some N fertiliser out of the system and better managing pasture will produce results – possibly even more milk production with less N input, as pasture quality improves through management. And lower N inputs will lead to lower N leaching – but simply, on the basis of the reduced N inputs.

So in my view, all farmers should be examining their use of solid fertiliser – but on the basis of nutrient budgets and nutrient use efficiency benchmarks – not on the basis of an argument that soluble fertiliser damages soil ecology.



Fert recommendations

The second idea is that fertiliser recommendations based on balancing base saturation will give better results than recommendations based on ensuring no nutrient is limiting.

This is a long-running debate among international soil and fertiliser experts. From what I have read, it is my opinion that the 'law of the minimum' effect is a more certain and cost-effective way of optimising fertiliser inputs and pasture growth.

Farmers have made the observation that changing their fertiliser programme has led to improved soil structure and water infiltration. While this may also be due to a focus on preventing pugging, it is an area where some further work may be warranted.

The third idea is that by using products claimed to enhance the soil's biological activity, farmers can produce more product with lower inputs, and have healthier animals and a better soil. Many of the products promoted utilise comparatively small amounts of materials including rock minerals, seawater, fish by-products and humates. Low rates of standard fertilisers are sometimes used.

There is no evidence that this will happen. This is an old argument being recycled in a new brand. Many hundreds of experiments have been done in New Zealand to measure the links between the 'active ingredients' in fertilisers and pasture growth and animal performance.

Research

Studies have been conducted under grazing and pasture mowing, and include long-term studies running for over 30 years. Many different types of products have been tested

alongside widely used products such as superphosphate, potash and urea. This research has helped calibrate soil and herbage tests for New Zealand conditions.

This work shows that the response to any input or 'active ingredient' is proportional to the amount applied. Research has shown that nutrients (P, K, S, N, Mg etc) lime and gibberelic acid are active ingredients.

The effectiveness of products such as DAP slurries, fine lime, seaweed extracts, di-calcic phosphate, serpentine and compost teas can be predicted from the amount of nutrients and lime contained by these products. There is no evidence that fine-grinding, foliar application, slurries or biological material in these products improves their effectiveness over and above the active ingredients applied.

I'm very aware of the interest in biological farming and the reports from farmers who believe they are getting good results. We are attempting to work with farmer advocates of biological farming to test their observations that they are getting responses much greater than can be explained by DairyNZ's current view of soil and fertiliser science.

These results will be reported to farmers as they emerge – but right now, my view is that when we see farmers using biological principles and getting good results – what we see is good farmers getting good results. But it is a consequence of good nutrient management, good pasture and feed management and a focus on protecting soils from pugging.

I believe that farmers will get the best value for money from their expenditure by following current advice based on soil, herbage and animal testing.

Carbon pricing's flaws exposed

Jacqueline Rowarth
(NBR April 20, 2012)

In all the blame, counter-blame and general misunderstandings about the Emissions Trading Scheme, the Kyoto Protocol and the global environment, major factors are being overlooked. Whether or not it is the ruminants, humans, cars or businesses that are causing the problem and whether or not planting trees can be used to mitigate the effects... the facts are (1) that taxes are rarely large enough to change people's behaviours for long and (b) carbon offsets have the potential to create greater problems in the future.

The effect of taxation on people's behaviour is the subject of considerable research. Behavioural economics and tax policy studies aim to identify how to encourage 'good' behaviour. It is now recognised that standard economic assumptions about individual behaviour are not accurate: people do not act rationally, they are not perfectly self-interested and they hold inconsistent preferences.

(Common sense supports this.) The most famous example of this unpredictable behaviour is in defaults...the explanation being that people take the easy option of agreeing to the default rather than doing the evaluation of financial

benefit. (This is why those in favour of increasing retirement savings in New Zealand suggest that Kiwisaver should be the default requiring effort to opt out.)

In an attempt to encourage good behaviour, Denmark has implemented a tax on fat in food. Results have yet to be announced, but predictions from the Forum for Health Economics and Policy were that the impact of a 10% fat tax on dairy products would result in less than 1% reduction in average fat consumption, and a 50% increase by only 3% lower intake.

For energy and carbon dioxide production the figures are even more depressing. Professor David Mackay, University of Cambridge and Chief Scientific Advisor to the UK Department of Energy and Climate Change, has calculated that to drive a change in behaviour in society carbon dioxide costs per tonne would have to be far more than current. In Sustainable Energy Without the Hot Air, Professor Mackay calculates that at US\$500 a tonne, average Europeans who didn't change their lifestyle might be spending 12% of their income on the carbon costs of flying, driving and heating

their homes with gas. Only when carbon dioxide reaches US\$900 per tonne would the carbon cost of driving result in an impact on people's behaviours.

The problem is that when the tax is small, people pay it and then believe they've done their bit – paying the price at the pump gives them the right to use the fuel (and create carbon emissions).

In the last six months, however, the price of carbon has fallen from 10-12 Euros to (16th April) 3-4 Euros. Business based purely on profit from sale of carbon credits have either closed down or substantially downsized their operations, and financial incentives to change have diminished.

Mitigation options are no less fraught. In an article in Nature at the beginning of April, Professor Kevin Anderson, University of Manchester, points out the inconvenient truth of carbon offsets. He was prompted to write by a conference organiser saying that the event would be as close to carbon neutral as possible – through the mechanism of a compulsory (which means no default opting out) US\$56 fee levied on all delegates for a series of carbon-offset projects. "Offsetting is worse than doing nothing", he wrote. "It is without scientific legitimacy, is dangerously misleading and almost certainly contributes to a net increase in the absolute rate of global emissions growth."

Professor Anderson emphasises that offsetting weakens present-day drivers for change – rather as does taxation. It also reduces innovation to a lower carbon future because it disguises market signals. Of even greater import are the

longer term impacts. "For an offset project to be genuinely low-carbon," he says, "it must guarantee that it does not stimulate further emissions over the subsequent century." If taxes and offsets are not the answer, we are left with regulation.

Research published by the Joseph Rowntree Foundation, UK, indicates that for domestic energy use compulsory reduction is favoured: it is perceived to be fairer and more successful than other methods as government intervention overcomes personal inertia.

In New Zealand we are more conscious of the carbon problem, and in ascribing blame, than in many countries because almost half of our emissions are to do with the farm animals from which we derive over half our export economy. It is difficult to change the biology of a ruminant, but considerable research is being targeted to identify best options.

We appear to forget that the other half of emissions are to do with transport and power, where we can have an effect.

Professor Tony Parsons, AGMARDT Chair in Carbon Cycling at Massey University, believes that putting a price on carbon is doomed to failure. "We can't 'buy' an actual reduction in carbon emissions. We need real reductions and not promissory notes," he says. "Markets can collapse and money is written off, but we can't afford to write off a failure to control carbon in the atmosphere."

The answer is in stopping the blame game and making sensible personal decisions on reducing carbon use.

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Gore - Conference 2012

The Executive met in Wellington in March to consider the abstracts submitted for this year's conference in Gore. We were pleased with the response to this year's call for papers and have been able to put together a very interesting programme.

The local organising committee are getting their teeth into planning and are looking forward to introducing everyone to their vibrant yet challenging farming environment.

It has been 20 years since the conference was in Gore (1992) and 12 since the Invercargill conference. Looking back, in 1992 AgResearch had a research station in Gore, research funding hadn't been fractured, and this is reflected in the type of papers presented at the conference then.

The following is an extract from Grant Catto's paper at the Invercargill conference which prophetically outlines the coming changes for the region.

"Southland farming has been dominated by sheep farming in the past, and will be in the future. However, with the present decline in sheep and cropping incomes, and the rise in profitability of dairy farming, forestry, deer farming and the expansion in horticulture, we saw a progressive change in land use during the 1990s. For example, in 1989 when travelling between farms, we would pass only one dairy farm, now we pass nine, many are on less-than-prime dairy land and they are relatively large. There is still only

one cropping farm, but one deer farm has now got three fellows. However, there are still no ostrich farms. I believe this sort of dramatic change is likely to continue, providing a wider and more stable economic base to the Southland economy, and a less volatile income stream to the rural towns, contractor and service industries.

Dairy farming's profitability means it will still continue to be the winner in the land grab. The eventual demise of the Dairy Board monopoly will allow for greater foreign investment in the industry so the growth of dairying in Southland will continue, although it will be based more on returns from marketing and distribution. An added bonus is that dairy farming brings young families to the rural communities – good for our schools, clubs and communities. The dairy industry will become a comfortable, second largest industry in the future."

Grant finishes with the following statement "I see three key issues facing all of these industries in the future: animal welfare, environmental concerns and genetic engineering." The continuing challenges of farming lead in quite nicely to the theme of the Gore Conference - 'Opportunities in land use change'.

So mark the date in your diary and 'Come on down'