



# Fertiliser Matters

New Zealand Fertiliser Manufacturers' Research Association Newsletter

## Industry on track to meet water quality improvement commitments

*The fertiliser industry is making good progress towards meeting its commitment to ensuring the sustainable use of freshwater resources in the primary sector.*

As part of the Primary Sector Water Partnership\*, the industry has responsibility for achieving two high level targets. These are:

**Commitment 1**

By 2013, ensure 80 percent of all nutrients applied to land nationally are managed through nutrient budgets and nutrient management plans that are quality assured.

**Commitment 2**

By 2016, ensuring that 1.7 million ha of intensively farmed land will, within the context of wider farm management planning, operate under nutrient management plans.

At the end of the first reporting period (June 2009) Fert Research advised its partners in the partnership that in relation to:

**Commitment 1:** *It has made a steady start towards this goal, and estimates that 38 percent of nutrients are being managed through nutrient budgets and 5 percent through nutrient management plans (the goal being 80 percent).*

**Commitment 2:** *It is estimated that 12 percent (210,000 ha) of the target of 1.7 million ha is currently being farmed using nutrient management plans.*

Other milestones crossed off by the fertiliser industry are

- Development of a training programme for fertiliser advisers (which includes Massey University short courses) that takes between 18 months and two years of in-house training to complete.
- Key components of the training programme cover all aspects of nutrient budgets and nutrient management plans. Additional elements are being developed to cover greenhouse gas emissions and carbon trading schemes.
- The development of internal and external auditing protocols covering nutrient budgets, nutrient management plans and nutrient recommendations.

In another development that will contribute to the fertiliser industry meeting its commitments to the water partnership,

Fert Research has committed to spending \$2.5 million over the next five years in the ongoing development and upgrading of the Overseer computer software program, owned jointly by Fert Research, MAF and AgResearch, which calculates and estimates the nutrient flows in a productive farming system.

MAF is matching Fert Research's investment in the Overseer upgrade.

The overall goals of the Primary Sector Water Partnership are to within five years, enhance or maintain water quality from primary production land, and improve water use efficiency.

\* Members of the Primary Sector Water Partnership are Foundation for Arable Research, Dairy NZ, Federated Farmers, Fert Research, Fonterra, Horticulture NZ, NZ Forest Owners Association, Irrigation NZ and Meat & Wool NZ.

### inside



# editoria

by Dr Hilton Furness – TECHNICAL DIRECTOR

## How bizarre, how bizarre!

**I**n sport, one of the golden rules is that you never complain about the referee, unless you win. The reason is obvious: if you win, you can't be seen as a winger.

On that basis I'm prepared to be critical of the NZ Food Safety Authority's decision to not audit 'novel' fertiliser importers, manufacturers and traders under the ACVM Cost Recovery Provisions.

Novel fertilisers fall outside of mainstream 'conventional' and 'organic' products, and cover a grab bag of products some of which claim to improve pasture or plant growth through processes that often defy good science, or is said to be 'proved' by research and testing that does not enjoy peer support.

In its latest 'Slice of Life' review\* of the fertiliser industry, the Authority's reviewer recommended that a targeted selection of importers, manufacturers and traders of novel fertilisers should be subject to a formal audit.

The Authority's rather weak response to this recommendation is: Fertilisers are considered low risk and a formal audit programme is considered as placing an undue compliance cost on this industry sector. It explains the Authority responds to suspicions or allegations of non compliance rather than pro-active monitoring and audit.

The fertiliser industry feels let down by this decision.

While mainstream players have to jump through hoops and comply with endless requirements (which we accept on the basis of good governance) those that practice at the margin of the nutrient spectrum ignore the rules with impunity.

On approaching two of these novel fertiliser vendors, the Authority's reviewer notes in the report the vendors: 'actively avoided or, in one case, signalled their refusal to be interviewed'.

From our experience not only do some of these novel fertiliser merchants often make the most outrageous claims for their products, they also often have the cheek to imply that those who have to meet stringent controls before they market their products are hoodwinking farmers.

To mimic the words of a well know pop song: 'how bizarre, how bizarre'.

And why have I the courage to complain about the Authority's decision? In commenting on Fert Research's two member companies – Ballance and Ravensdown – the Authority stated: *[they] had very good awareness of NZFSA jurisdiction and ACVM Act requirements... They provided clear evidence that they were operating under strict process control, ensuring that product they produced was labelled appropriately 'fit for purpose'*.

\* NZFSA Fertilisers 'Slice of Life' Review, August 2009.

## Carbon footprint, not food miles is the issue

**A** British Department of Environment, Food and Rural Affairs report, that looks at the carbon footprint of producing food, and getting that food into the hands of consumers, somewhat undermines the argument put forward by some that because of 'food miles', it is better to consume local food.

This report is of great interest to New Zealand, as our food has been the subject of some criticism by European pressure groups for the carbon footprint required to get our food to their markets.

The report makes it clear that the total carbon footprint involved in producing and getting local product from farm gate to the supermarket and then to the consumer's home, is not too different from that for New Zealand food.

While the carbon footprint on the New Zealand delivery system is higher, this is offset by the lower carbon footprint to produce our food. While the end result is neutral, this myth will no doubt take some killing off.

## World fertiliser use forecast to rise

IFA is forecasting that the slump in world fertiliser use felt during the last quarter of 2008 is likely to be reversed over the coming 12 months, with usage expected to hit 165 million tonnes in the 2009/10 year.

In 2007/08 usage was 168 million tonnes and in 2008/09 160 million tonnes.

Its forecast for agricultural commodity prices for 2009/10 is that they will remain 'attractive, encouraging farmers to increase crop production'.

In New Zealand and Australia, the forecast is that the increase in fertiliser use is likely to be 'slight'.

# Nitrogen research supports current hill country practice

*The four-year research project<sup>1</sup> that looked at the use of nitrogen on hill country has added an enormous amount to our knowledge and understanding of the production capacity of this terrain, and the potential environmental impacts that may result from more intense farming.*

AgResearch undertook the research project on behalf of Government agencies and primary sector organisations, including Fert Research.<sup>2</sup>

In releasing the final report AgResearch focused on two main points. These were that,

- at an application rate of 50 to 100kg nitrogen per hectare, which is in line with normal commercial applications in hill country, nitrogen will have a minimal environmental impact and
- at an application rate of up to 200kg nitrogen per hectare<sup>3</sup> nitrogen is unlikely to cause significant adverse effects.

The research noted how critical site specific factors such as soil type and depth, angle of slope, temperature, rainfall and grazing levels have on the potential for grass growth and leaching.

The trial clearly demonstrated that different combinations of growing conditions and livestock management can produce totally different results. Site factors and growing conditions need careful consideration before nitrogen is applied.

The learning is that before committing to any nitrogen application programme, particularly if it goes beyond 200kg per hectare a year, a farmer needs to understand the implications for the specific site; the potential for increased grass growth and the management required to

utilise that extra feed. At higher levels of nitrogen application, very intensive stock management is required.

This is the first major attempt to directly quantify the amount of nitrogen leaching from below the root zone in grazed hill country pastures. The results make it clear it is not possible on a wholesale basis to transfer our basic understanding of what happens to nitrogen use on lowland pasture, and say this is what will happen in hill country.

Terrain, different animal behaviour (dairy cows compared to beef and sheep) and stocking rates all influence the interaction between nitrogen, its use by pasture and leaching.

A further consideration is that in lowland situations dairy cows will spread nitrogen more widely across the paddock, with most nitrogen leaching occurring from well distributed urine patches. On hill country, terrain dictates that nitrogen is less widely spread with the hot spots being in those locations where the animals make their 'camps'.

Overall, the hill country project has produced a solid piece of research which gives us a great deal of new knowledge and a better understanding of the complex relationship between nitrogen applications,

grass growth, intensity of animal grazing and leaching.

While results suggest that the use of nitrogen in hill country at normal commercial rates (<100 kg N/ha) will have relatively small effects on nitrogen leaching, it also underlines there is no simple, one approach answer to nitrogen use.

With intensification a detailed appreciation of the whole farming system is required to ensure wise and sustainable use of nitrogen.



<sup>1</sup> *Wise & sustainable rates of N fertiliser use on hill country.* AgResearch, December 2008.

<sup>2</sup> *Fert Research, Ballance, Ravensdown, MAF Sustainable Farming Fund, FRST, Meat & Wool and Pastoral Greenhouse Gas Research Consortium.*

<sup>3</sup> *The Code of Practice for Nutrient Use notes that 200 kg per ha of nitrogen is an 'approximate guide' as to when adverse environmental effects may be detected.*

## World interest in the New Zealand way

**T**he international fertiliser world is keen to hear about New Zealand's experience in using best management practice and quality assurance programmes to manage the use of fertiliser to achieve production and sustainability objectives.

Fert Research's Technical Director, Dr Hilton Furness, has been invited by the International Plant Nutrition Institute (IPNI) to address its conference in Sao Paulo in Brazil at the end of September. The Nutrition Institute is meeting the costs of the trip.

The title of his address is *Proactive support in identifying and promoting fertiliser best management practices.* His address will eventually become a chapter in a book that will be produced covering the conference proceedings.

# Member companies of Fert Research produce 'fit for purpose' products

*The member companies of Fert Research – Ballance and Ravensdown – came through the extensive 'Slice of Life' audit undertaken by the NZ Food Safety Authority with a big endorsement tick beside their names.*

The audit's focus was on whether the co-operatives complied with the Agricultural Compounds and Veterinary Medicines (ACVM) Act and its regulations, and focused on labelling, whether the products sold were 'fit for purpose' and the companies' quality assurance processes.

The reviewer found the companies 'well resourced' and provided them with 'ready and open access to all necessary files, documents and processes'.

"This access provided transparent evidence that they were operating under strict process control, ensuring that product they produced was labelled appropriately for fit for purpose as defined by the ACVM legislation," read the review.

"During site visits the reviewer observed that fit for purpose criteria were being systematically assessed (via process control and laboratory analysis) in an ongoing manner from importation to manufacture and trade by these two conventional fertiliser operators.

"On the basis of the background information obtained...the reviewer concluded that these two operators comply with NZFSA requirements."

For the sake of the Slice of Life audit the fertiliser industry was segmented into three sectors – Fert Research members Ballance and Ravensdown (called conventional fertilisers), six organic fertiliser importers/manufacturers/traders and a variety of novel fertiliser products.

The audit noted most of the organic fertiliser operators interviewed 'provided acceptable evidence that product they produced and traded was acceptably labelled and fit for purpose as defined in the ACVM legislation.

The reviewer were not so complementary about novel fertilisers and noted 'two fertiliser manufacturers or vendors involved in the novel fertiliser sale categories actively avoided or, in one case, signalled their refusal to be interviewed. The reviewer recommended novel fertilisers be subjected to formal NZFSA audit. This recommendation was not adopted by the NZFSA [see editorial].

## New world chair for fertiliser industry

The new world Chairman of the International Fertilizer Industry Association (IFA) is Ajay Shiram. Based in India, Mr Shiram is Chairman and Managing Director of DCM Shiram Consolidated Ltd, and a director of the Fertiliser Association of India.

IFA has some 525 member companies who produce and distribute fertiliser and its raw materials. It is represented in about 85 countries, and its member companies produce some 170 million tonnes of fertiliser nutrients annually.

## Founder of green revolution dies

The father of the 'green revolution', US agricultural scientist Norman Borlaug, whose work contributed to making more food available to the world's hungry, has died at the age of 95.

Borlaug headed the crusade which helped develop high-yielding, disease resistant crops credited with saving the lives of millions of people by rapidly increasing the world's food supply.

He began his work in the mid 1940s, and by the mid 1960s had developed hardier, better producing strains of wheat, which were then put into extensive production.

In its June issue National Geographic reported that between 1950 and the mid 1990s, the world doubled the output of corn, rice and wheat. It claimed that to meet the current rising demand for food caused by world population growth, we need to repeat that achievement between now and 2030 – or in other words, at double the speed of the first green revolution.

## Nitrification inhibitor research

Fert Research and its member companies – Ballance and Ravensdown – have joined with MAF and the dairy industry in a three-year, \$10 million study aimed at measuring the effectiveness of nitrification inhibitors to enhance pasture growth across the country while reducing nitrous oxide emission and nitrate leaching. The study will provide further knowledge and experience across a range of New Zealand farming conditions.

The project is being managed by the Pastoral Greenhouse Gas Research Consortium.



New Zealand Fertiliser Manufacturers' Research Association  
Unit 14, 33 Apollo Drive, Rosedale, North Shore City 0632, New Zealand  
Telephone: 09 476 3079 Fax: 09 476 3059 Email: [info@fertresearch.org.nz](mailto:info@fertresearch.org.nz)  
[www.fertresearch.org.nz](http://www.fertresearch.org.nz)

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