

GROUP ONE – THE CASE FOR THE MIDDLE PATH

Dr Bert Quin

*Quin Environmental (NZ) Ltd
PO Box 125 122, St Heliers, Auckland 1740, New Zealand
Email: quinfert@xtra.co.nz*

Abstract

Group One is an informal group of companies involved in fertiliser importing, distribution, retailing, advice and spreading. It has been set up to offer farmers an alternative to the traditional superphosphate and urea approach. While recognizing the need for maintainance fertiliser application, Group One places a stronger focus on soil health, and promoting the use of scientifically-tested means of improving the efficiency of nutrients.

Introduction

The fertiliser industry in New Zealand is by dictionary definition a duopoly, which comprising over 90% of the total market. The two companies have both built enormous infrastructures throughout New Zealand, and are consequently extremely dependent on maximising sales tonnages, particularly single superphosphate (SSP), potash, DAP and urea. Their research input is focused on pasture production, and more recently, means of reducing nitrogen (N) loss, but surprisingly almost entirely that from animal urine patches, not from urea fertiliser. Very little investigation into reducing P losses into waterways is being conducted.

Increasing numbers of farmers are expressing concern regarding what they perceive as a deterioration in soil 'health' or biological activity. Compaction from over-stocking, reduction in clover vigour and N fixation from both increased shading from fertiliser N-fed ryegrass, and increasing numbers of, and susceptibility to, clover pests and diseases are some reasons. The two major companies have adopted a 'not our problem' policy with respect to these increasing problems, despite being owned by the very farmers who are looking for means of optimising their soils' productivity.

This failure to recognize and act on farmers' concerns have created opportunities for a second generation of 'muck and mystery' merchants, all claiming to have the 'silver bullet' farmers want. These companies are normally big on advertising but provide no useful hard data. There are companies however that have good, promising products, developed on entirely rational grounds, which have the potential to greatly improve nutrient efficiency and/or improve soil biological activity. However, because these companies are generally poorly resourced, they have very little ability to compete in the advertising and distribution worlds, or compete for Government funding. Consequently, they struggle to afford to carry out or find scientifically robust field trials at a range of locations.

Group ONE has been set up primarily to give these companies and their products and services, and their opinions, a real voice in New Zealand agriculture.

Who is Group ONE?

Group ONE is an informal association of individual fertiliser spreaders, fertiliser and lime suppliers, and consultants, none of whom are owned or controlled by the two fertiliser cooperatives.

All members of Group ONE are committed to providing New Zealand farmers with continuing access to alternative products, services and advice that will help maintain the productivity and biological health of our soils, while protecting the environment.

In particular, Group ONE endeavours to promote the benefits of appropriate “fluidised” or suspension fertilisers. Group ONE defines fluidised fertilisers as:

“Highly concentrated (less than 30% water by weight) liquid fertilisers and soil amendments comprising agronomically effective combinations of fertiliser, trace elements, lime and other minerals, in which the primary aim is to prepare and apply the product in the chemical form and particle size range for each ingredient that will optimise cost-effectiveness and minimise losses to the environment.”




Conditions of Membership





Group ONE members must be able to provide farmers with the necessary products, service and knowledge as applicable to their company, to enable the New Zealand farmer to use non-conventional products wisely.

- Fertiliser Spreaders must have the capability to apply fertilisers in both solid and suspension (fluid) forms, and supply meaningful ‘proof of placement’ farm maps.
- Fertiliser Suppliers must include detailed descriptions of individual products, their intended purpose and mode of action, and whether they are designed for solid and/or suspension (fluid) application.
- Soil Fertility, Fertiliser Consultants and Fertiliser Company Staff must provide competent advice describing what a particular fertiliser recommendation will supply in kg/ha of individual nutrients and/or trace elements, what it is intended to achieve in the short term, its contribution to the long-term maintenance of soil fertility and health, and effects on the environment compared to ‘traditional’ fertiliser.

None of the above precludes any member from assisting a farmer to use traditional fertiliser if this is the farmer’s preference.

Current Members of Group ONE

	Privately owned international fertiliser, soil fertility and environmental consultancy company of Dr Bert Quin, which provides scientific advice to Group ONE.
	Privately owned importer and manufacturer of a range of RPR and mineral-based solid fertilisers concentrated NPK liquid fertilisers, biological soil amendments and insecticides.
	Privately owned fixed-wing and helicopter applicator of solid fertiliser, suspension fertiliser and agricultural chemicals, and air charterer.

	Based at Ardmore, Auckland. Applicator of solid and suspension fertilisers, agricultural chemicals and lifting specialists.
	Based at Hastings. Applicator of solid and suspension fertilisers.
	Based at Hinuera, Waikato. Quinspread is a developer and provider of NZ designed technology for on-truck grinding, wetting and application of high-solids fluidised fertilisers and mixes with liquid and solid additives.
	Importer and manufacturer of trace minerals for livestock/farm animals and fertiliser industry. Produces soluble mineral formulations to improve and maintain dairy herd health.

An Example of Information and Views Articles available from Group ONE –

‘The Nitrogen Problem and What to Do About It’

Cow urine and fertiliser urea

The largest source of N loss from intensively grazed pastures in New Zealand are cow urine patches, particularly as nitrate leaching and nitrous oxide greenhouse gas emission. Application rates in the urine-affected ‘patch’ are typically 500-1000 kg N/ha, mainly as urea, vastly more than the most vigorous pasture can recover.

The second biggest source of loss is direct loss from fertiliser urea, principally as nitrate leaching and ammonia volatilization. The latter can occur at much cooler conditions than farmers are generally lead to believe, because many other factors, such as soil moisture, micro-soil pH and wind, are equally or more important.

There are direct and indirect methods to reduce urine-N losses. Indirect methods include (a) better balancing of energy and protein in daily feed intake to reduce excess N intake and voiding in urine, (b) the use of feed pads or cow-homes with run-off collection, especially in winter, and (c) time-limited grazing combined with stand-off pads with run-off collection, again for irrigation. Each of these have their own practical advantages and disadvantages.

Direct methods include mechanically spreading the whole pasture with nitrification inhibitor, such as Ravensdown’s eco-N suspension or Ballance’s dcN granules. Both are expensive, and require 2-6 applications per year depending on the situation and climate. Use of a double inhibitor, containing urease inhibitor as well, has been shown to be more effective in university studies.

A soon-to-be-available alternative is the ‘Taurine’ tail-attached device under development by Quin Environmentals (NZ) Ltd, with assistance from Bishop Research Ltd. (Bishop and Quin, 2010). This simple device is a tail-attached hanging tassel which, on contact even briefly with each urination flow once the tail is raised, releases a reasonable consistent quantity of double inhibitor into the urine, ensuring the inhibitors are placed exactly where required, at the time required, every time.

Inhibitors

Direct gaseous losses from granular urea fertiliser are most effectively and reliably achieved by coating with a urease inhibitor such as Agrotain. Other techniques such as coating with elemental S or humate are generally less reliable or too expensive. Typically, Agrotain coating can increase the extra DM produced for every kg of N applied per hectare by 40%, for example from 10 kg extra DM per kg N applied to 14 kg extra kg DM.

Fluidised Urea Incorporating Urease Inhibitor

However, a vastly superior method to improve the efficiency of granular urea is to turn it into a thick fluid containing urease inhibitor. This product can be applied either from the air, using fixed-wing aircraft with a fluid spreader or a spray boom, or helicopters fitted with booms or spray buckets. Either support trucks carrying grinding mills and mixing tanks, or pre-prepared agitator-fitted fluid/suspension tanks, are required. For application on smaller areas of flatter land such as dairy farms, Quinspread Environmentals (www.quinspread.co.nz) have developed new spreading-truck technology, which converts granular urea into a thick fluid containing urease inhibitor on-truck (“Nhance”), as the truck is spreading. Consequently, no additional staff or equipment are required (Quin and Findlay, 2009)..

Conclusions

Increasingly, Regional Councils in New Zealand are taking the initiative in setting limits on nutrient use, initially in the most sensitive catchments. The traditional response of many in the industry to fixing productivity problems – applying still more fertiliser – has had its day, and we must all start finding how to increase productivity per unit of nutrient applied, by improving soil biological activity and reducing nutrient loss to the environment.

References

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