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New Zealand Productivity Commission
P.O. Box 8036
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Dear Sirs

Low Emissions Economy

In business, I have a particular focus on sustainable agriculture and the environment, and the benefits for both that are available with new generation bio-fertilizers and soil inoculants.

Much of my work is now conducted in Europe, because the previous Government and mainstream agricultural scientists at institutions such as Massey University, AgResearch, and DairyNZ appear to have closed their mind to the new technologies.

It has now become imperative to put in place effective regulatory controls to improve freshwater quality and reduce emissions, and the purpose of this communication is to inform you about these technologies that are well proven internationally, are available in New Zealand but neither acknowledged by mainstream agricultural scientists nor being adopted widely by farmers.

Bio-fertilizer technology

The technology I refer to is organic, poly-microbial bio-fertilizer, which is an effective replacement for chemical fertilizers and in particular inorganic nitrogen and phosphorus.

In Europe, excessive use of chemical fertilizers was recognized some years ago, and it led to the EU Parliament issuing a directive with regards to reducing the use of NPK. There has been a mixed response from member nations, but changes are happening in a number of countries, which is being led by the multi-national food companies, and a growing number of consumers who are willing to pay premium prices for foods grown organically or “sustainably”.

In both Australia and South Africa, there are supermarket chains that have adopted a policy of only stocking foods grown sustainably, but there is no evidence of this happening yet in New Zealand.

The EU also has a raft of incentive programmes to encourage industry and agriculture to adopt new environmentally friendly technologies. This is something else New Zealand needs to consider as part of its drive for improved productivity.

In my view, the cost of incentivizing pastoral farmers in particular to change their fertilizer usage programmes in favour of a poly-microbial organic alternative would be significantly less than the cost of remediating the environmental damage caused by chemical fertilizers.

The adoption of bio-fertilizers by farmers would significantly improve freshwater quality within a relatively short period, and have a beneficial effect on emission reductions from agriculture, which is the highest for any country in the OECD at close to 50%.

Comparatively few people understand poly-microbial bio-fertilizer technology including senior management in large multi-national food companies, government regulators, and leading environmentalists such as Sir Jonathon Porritt who founded the UK based Forum for the Future and with whom I have regular correspondence. Sir Jonathon also advises Fonterra on sustainability.

In my view, Fonterra has a lot to answer for by disregarding new poly-microbial technology and continuing to support the use of chemical nitrogen and phosphorus under its sustainability code. Fonterra's senior management must know about the new technology, but chooses to ignore it.

Mainstream agricultural scientists in New Zealand still maintain that the only way to fertilize agriculture land effectively is with chemicals and in particular the complex fertilizers which include nitrogen, phosphorus, and potassium (NPK). Why is this?

Chemical fertilizer is well proven to support pasture growth and crop yield, and the chemical giants such as Bayer, YaraMila and ChinaChem have such global market dominance and control of the supply chain through to the end user that it is extremely difficult for manufacturers of effective bio-fertilizers to become generally accepted.

To date, bio-fertilizers have made little impact on the consumption of chemical fertilizers although Berkshire Hathaway has recently published research that says the global market for bio-fertilizers is increasing at the annual compound rate of 14%; but it is from a very small base.

This growth is still significant, but it is not happening in New Zealand.

Federated Farmers recently stated publicly that Ravensdown and Ballance Agri-Nutrients control 98% of the domestic fertilizer market, and with these companies owned by some 50,000 farmers in co-operatives, the large pastoral farming sector is a "closed shop".

I have personal experience in talking with farmers and growers who show a total disregard for the damage they are doing to their land and the environment. Their only interest is to maximize revenue and profit, which is at the expense of all ratepayers

who have to fund the environmental remediation costs. Clearly, this is not equitable, nor is it acceptable.

A growing number of farmers are environmentally conscious and act responsibly; nurturing their land and using little or no chemical fertilizer. But they are a very small minority, and the change needed to address New Zealand's environmental problems requires intervention and regulation by Government.

A good example of the current situation is the Bay of Plenty Regional Council's Plan Change 10, Nutrient Management, Lake Rotorua. After huge expense, many submissions, a public hearing, and a decision in favour of the Council by a panel of independent experts, virtually all parties affected by the proposed implementation still oppose any change.

Some, including Federated Farmers on behalf of farmers in the catchment, have appealed the decision to the Environment Court, with little or no chance of changing the decision already made. All this does is incur more costs and cause a further delay in remediating the causes of pollution to the lake.

It will take many years to go through the cumbersome and expensive RMA process, which, when Council decisions are eventually implemented, actually have the effect of reducing inorganic nitrogen and phosphorous entering fresh water resources.

In my opinion, one of the most important pieces of legislation the present Government can introduce is to regulate the use of nitrogen and phosphorus, and lower the present nationwide consumption by at least 50%.

Such a regulation will be fiercely opposed by Ravensdown and Ballance Agri-Nutrients; but this is in self-interest and the desire to sustain their present business, which they too must know is damaging the environment. They can be expected to oppose any changes, as did the tobacco industry when it realized that Government was determined to force a significant reduction in the consumption of tobacco.

The outcome for the tobacco industry was inevitable, and that should be the same for chemical fertilizer.

The tobacco industry reinvented itself with the introduction of electronic cigarettes, and in the same way, Ravensdown and Ballance should become key players in the manufacture and distribution of bio-fertilizer.

Ballance has already been offered an opportunity to do so, but like the tobacco industry, they do not want to adopt a technology which will seriously disrupt their present business for a period.

What should Ballance do with its Urea plant in Taranaki? I say close it down, or produce for export only. The plant is old and inefficient.

Ballance has been seeking a partner to invest hundreds of millions of dollars in a modernization programme for about two years, but this seems unlikely to happen given the widely held knowledge that inorganic nitrogen is largely responsible,

directly and indirectly, for much of the environmental problem New Zealand has to remediate. The Government should not let this happen.

I have read the scenario report prepared by Vivid Economics of London for “Globe-NZ” titled “Net Zero in New Zealand”.

In my opinion, given the time it takes to get anything processed through the RMA and the Environment Court, there is no possibility of New Zealand achieving emissions neutrality by 2050, and planting huge new areas in forest is not the best solution if the investment is only to meet emission reduction objectives. There must also be a good economic case and that is hard to make given a crop cycle of 25 years or more.

The report by Vivid Economics is seriously deficient in that it did not run a scenario based on a reduction in consumption of chemical fertilizer, and makes no reference to how the country can improve its freshwater quality.

Why not you might ask? The reason is they took their brief from mainstream scientists that support the continued use of chemical fertilizer, and others who are focused on research projects that have as their objective to mitigate the negative impact of chemical fertilizer on the environment, but really offer little hope of achieving anything significant within a reasonable timeframe.

The scenario under the title “**Innovative New Zealand**” assumes the country will plant an additional 1.5 million hectares of forest and scientists will discover a vaccine to stop ruminant animals belching methane, and genetically engineer cattle to produce urine with lower levels of nitrogen.

New Zealand can't plan to meet its commitments to zero emissions by 2050 on such hypotheses. It needs to adopt reality, and that is where bio-fertilizers have an important role to play.

One of the new generation bio-fertilizers with which I am involved is now available in New Zealand in large commercial quantities. It is reliable, organic, and outperforms chemical fertilizers in a number of respects with no adverse environmental consequences.

This technology is currently sourced from the USA as a ready to use product (www.sumagrow.com) and there are plans for this to be manufactured in New Zealand once an adequate domestic market is established.

The US principal has said it will bring what is a new high tech industry to New Zealand that will source virtually all its raw materials locally, employ skilled persons, and export its product throughout the Asia/Pacific region.

This operation has the potential to make a very significant contribution to the New Zealand economy, comparable with the kiwifruit industry over a period of 10 years.

I also represent what is probably the best soil inoculant technology available in Europe, for which I have responsibility to develop international markets. Already, we

have an agreement with Chinese partners to set up a manufacturing facility in China, and the opportunity is also available to set up in New Zealand to supply Australasia.

We are talking about a new industry that could potentially generate more than one billion dollars of export revenue per annum over time, save significant foreign exchange through reduced imports of chemical fertilizers and stop much of the current pollution from agriculture into the atmosphere and freshwater resources.

I could write a book on the subject, but let me conclude by saying that I was recently approached by the organization "Pure Advantage" that is creating awareness of environmental issues and seeks a better response from Government in dealing with climate change issues. I was asked to write a response to the Net Zero in New Zealand report addressing the question "Can New Zealand Agriculture become Sustainable?"

I have attached a copy of my response to the question, which also outlines what I believe needs to be done under a directive from Government in preparation for the general acceptance by farmers and growers of bio-fertilizer as at least a partial replacement for chemical fertilizer.

"Mitigating Climate Change" with low soil disturbance no-tillage technology

This has been developed in New Zealand over 30 years, and the initial work was conducted at Massey university by young scientists led by Dr John Baker, now the CEO of Baker No-Tillage Limited.

This technology, known as "Cross Slot" is world leading and is also disruptive to the multi-national companies that dominate the supply of tractors and agricultural equipment. (www.crossslot.com)

The wide adoption of Cross Slot technology for crop establishment, can also make a significant contribution to the reduction of CO₂ emissions, higher crop yields and, sustainable agriculture.

I am starting to work with this technology in Eastern Europe and China. Already, the EU offers substantial grants to farmers who purchase a Cross Slot, because of the environmental benefits they offer.

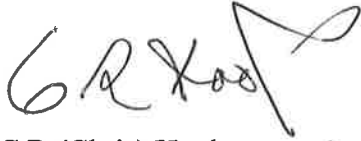
I don't propose to discuss Cross Slot in any detail, but enclose a copy of a paper written by Dr Baker which covers the subject in a comprehensive manner.

I am currently in New Zealand, and will remain here over summer before returning to Europe.

I hope to make a contribution to effecting a change in the way land is fertilized in future, as only by doing so we will protect the quality of the New Zealand environment for the benefit of future generations.

I would be pleased to provide any further information you require to validate what I say, and offer my knowledge and experience to those who are responsible for addressing the pressing issues of water quality and emission reduction.

Yours sincerely

A handwritten signature in black ink, appearing to read 'C R Hook', with a stylized flourish at the end.

C R (Chris) Hook
Director and CEO
Farmorganix Europe S.R.L.