SEE INSIDE FOR

NEW CASE STUDIES

ARE YOU REGULATION READY?

PHOSPHORUS ALTERNATIVES

FOLLOW THE FARMER: DEVELOPING A BETTER BUSINESS.

How do farmers build resilient, environmentally friendly, and profitable businesses? The vision is (not so) clear.

Navigating your way through the various methodologies, nutrient systems and products of dairy and dry stock farming, agriculture, and food production can be a tiresome and confusing process.

With a myriad of scientists, advisors, information, online videos, seminars, and publications available, how do New Zealand's farmers and growers make sense of what the best and most efficient approaches to improving their businesses are?

At Tow and Fert our work takes us around the country, from the top of the North Island to the bottom of the South Island. Every single day we meet with farmers and talk about their platform, their nutrient program, and everything in between. At the forefront of farmers' minds is the need to change what they are doing for the benefit of their farm and their future.

There is a general feeling that the way we have done things for the last 50 years must change. How much each farmer wants or needs to change is an entirely individual question. Each one has different reasons for wanting to develop and change the way they do things on their land.

But central to all of this is the goal to create and sustain a better business. But what do they mean by 'better business'?

DEVELOPING A BETTER BUSINESS

'Better' is a word thrown around seemingly at will by marketing people often with little regard to what it is that something is better than? Without a baseline from which to work 'better' simply becomes a buzzword to attract attention.

If we look at what 'better' means and how it applies to our industry, 'better' is referring to the constant efforts by farmers and growers to "improve on or surpass an existing level or achievement."

(Oxford Languages Dictionary).

Placed in this context that would mean that any or all, of the following touchpoints, can be improved on:

- Business profitability
- 2. Environmental impact
- 3. System efficiency and productivity
- 4. Animal health
- 5. Worker health and safety

By no means an exhaustive list, the above simply captures a range of outcomes that can determine whether a business is becoming 'better' over time. Looking at all of these listed above it quickly becomes clear that each is dependant and, in many ways, determined by the others.

We need to look at the five points above as one integrated 'whole' where each is inextricably linked to the others and, if one is allowed to flounder, can pull down the other four touchpoints listed.



Innovation in the dairy shed has been a constant driver of farm performance over recent years.

In New Zealand, we are fortunate to have an incredibly strong dairy industry. Our farmers are innovative, hardworking, and striving for excellence every single day, they are the 'backbone of our economy'.

And contained within that backbone is an incredible array of diverse and profitable systems in operation.

FOLLOW THE SCIENCE: In pursuit of 'BETTER'

For many years we have been told to 'follow the science'. Science will tell us how to create a better farm and business. Science has allowed many farmers and those in the food production industry to grow profitable businesses. What we see happening today is a terrific number of farmers experimenting down on the farm with fertiliser and nutrition products, application techniques etc and in the process creating systems that have a positive impact on all five touchpoints listed above.

There are those in the media whose opinions take a very singular approach to farming and whilst these opinions are important it is crucial that farmers also look across the fence at their farming friends and neighbours to observe what they are doing that is working. The future of farming depends on innovation across the farming system.

To ignore these farmers is to put your head in the ground with your eyes closed. No amount of light, water, nitrogen, phosphorus, fish fert, seaweed, or any other nutrient product is going to help you 'see' potential other ways of managing a farm's fertiliser program. It is important that we are all prepared to look at, study, and ask questions about the results these farmers are getting.

FOLLOW THE FARMER:

Regenerative Agriculture, Sustainability and Conventional Fert

It is in the blood of farmers to try things, to innovate, and to find a better way of doing things. Today we often hear about Regenerative Agriculture and its benefits to the environment, animals, businesses, and people.



Regenerative Agriculture is defined by Manaaki Whenua, Landcare Research in the following way: "Regenerative agriculture is a biodiversity-driven management system. It seeks to promote ecological synergies between components of the agroecosystem from the ground up, by:

- Building soil health
- Increasing plant and animal nutritive quality
- Reducing stresses on stock animals
- Reducing dependence on agricultural chemicals.

The ideas behind Regenerative Agriculture are simple. For an ecosystem to thrive it must be in balance. To be in balance the ecosystem must be sustainable.

This is great in theory and where those in the media can often get sidetracked believing that theory does not equal fact. If the theory is put into practice and the results appear to work, then we owe it to ourselves and those we work with to take a closer look and investigate what is happening.

And this is where we see time and time again across New Zealand farmers 'doing things for themselves.' If you have followed our farmer stories online and, in this Tow and Fert Times Tabloid then you will know the stories of some of our farmers and clients. In this edition of the Tow and Fert Times you will see two case studies of 'Women in Dairy' leading the way by trying new things on their respective farms, and of one farmer in the Taranaki who has continuously experimented with different products to create a system that won him an Environment Taranaki award.

Most importantly we are continually hearing stories of farmers improving their businesses. Whether it is by using less fertiliser (N) and growing more grass or mixing and experimenting with other conventional products such as Gibberellic Acid or Lime flour for improved soil health or from those who have gone through the complete Regenerative model using cover crops, organic fertilisers and the like, farmers across the country are building better businesses by learning, innovating, and trying new things.

THE VISION IS CLEAR(ER)

Albert Einstein said, "Once you stop learning, you start dying."

With all the focus on the environment, water quality, etc farmers are trying new things. They know that change needs to occur, and they want to change.

In some ways farmers must become 'scientists' themselves, and many already have, trying new things, experimenting with different ideas, and monitoring the results. We tell our prospects to start small, try one paddock at a time. Employ a Tow and Fert Contractor to spray 4-5 hectares of pasture with your fertiliser mix, see how much less you can use, monitor the results, see if it works.

Talk to your neighbours, have you seen a farm that looks like its pasture is greener and richer than yours, go and talk to them, discuss their results, is it working for them? If it is then decide if it could work for you, give it go. Start small and see what happens.

Finally, there are systems and programmes that work across the spectrum. In fact, Regenerative Agriculture need not be the end game for all farmers and probably won't be. Instead, a cross-section of systems is already available. From solely conventional fertiliser reduction to fish fertilisers and seaweed products, to organic composts and organic fertilisers, the spectrum is wide, and the opportunities great for building a better business. Which direction you choose to take is entirely up to you and the needs of your business.

See inside for:

CASE STUDIES WOMEN IN DAIRY

In this edition of the Tow and Fert Times we profile two 'Women in Dairy' on farms in Invercargill and Canterbury with outstanding results.

FARM MANGER

Georgie Galloway:

Managing a 160 hectare farm near Invercargill, Georgie has changed the farms fertiliser programme with outstanding results.

FARM MANGER

Amy Stokes:

Using a Tow and Fert Amy has applied animal health products and liquidised Urea to grow more grass.

CASE STUDY FOLLOWUP

TWO AND A HALF YEARS ON WITH THE TOW AND FERT.





We profiled Allan Marx in a case study in Volume 3 of the Tow and Fert Times. On page three we revisit Allan, 18 months later and discuss the changes he has made to his farm system.

PHOSPHORUS IS CRITICAL TO SOIL HEALTH. WHAT ARE THE 'P' OPTIONS AVAILABLE TO FARMERS?

One of a few products that does not go through the Tow and Fert is Super Phosphate. There are alternatives for Phosphate application. Below Outgro Fertiliser and Fertilizer New Zealand explain the importance of Phosphate and the different products they offer that do go through the Tow and Fert Machines.

Contributor articles.



Testing for Phosphorus will tell you what maintenance or capital products to use.

It is common knowledge that Phosphorus is one of the key 16 Nutrients required for optimal pasture growth and its levels present in the soil are commonly the first thing looked at on any soil test. Phosphorus levels are often a key driver in determining soil fertility so its importance cannot be overlooked.

Traditionally, it is the Olsen P test that is used to gauge the soil reserves of phosphorus and Super Phosphate has been the go-to product for both maintenance and capital applications. Unfortunately, Super Phosphate is one of the few fertiliser products that will not go through a Tow and Fert. Fortunately, there are alternatives to Super Phosphate. In recent times there has been more interest in these alternatives as both the potential losses to the environment and the impact of acidic fertiliser applications on soil biology and pH has become more openly discussed. Other test methods are also now more commonplace, each with their own pros and cons around seasonal variations and accuracy. Hill's Laboratories supply some good technical notes on this. In our opinion, at Outgro, alongside the Olsen P test, the Resin P, Total P and ASC (anion storage capacity) test should also be included in determining Phosphorus requirements as well as your operational situation and overall soil type.

Once the requirements have been determined then comes the decision as to what product to use for either maintenance of existing levels or a capital dressing to lift the current levels. For us at Outgro the ultimate P fertiliser has:

- Low water solubility (minimise environmental losses),
- 2. High citric solubility (highly plant available),
- 3. Non-acidic (neutral pH),
- 4. Low in contaminants (cadmium, arsenic, fluorine, lead),
- Is sustainable both in terms of results and in an economic sense.

The form of Phosphorus that ticks most, and in some cases all the boxes above is Di-Calcium Phosphate (DCP). DCP is a fine particle option and is suitable for Tow and Fert applications. DCP provides good compatibility with other products enabling a comprehensive 'one pass' mix approach that will cover both maintenance and/or capital requirements.

The other Phosphorus option that is worth mentioning is MAP or Mono Ammonium Phosphate which is a highly soluble product applied in a liquid form capable of being absorbed through the plant leaf rather than via the soil/root system. While this is not suitable for addressing soil P reserves, it works well in combination with other ingredients to enhance foliar uptake.



There are different options available for Phosphorus application through a Tow and Fert and Outgro's MAP Tech and DCP are two that are suitable for farmers.

PHOSPHORUS FERTILISER:

TOW AND FERT COMPATIBLE PHOSPHORUS PRODUCTS.

By Outgro Fertiliser

- MAP Tech: A technical grade product offering high solubility.
- DCP: Di-Calcium Phosphate is a high analysis fine particle Di-Calcic product.

Contact Shaun Parkes, Outgro General Manager on 027 555 6303 for more information.

By Fertilizer New Zealand Ltd

- **Phosphate 365:** A prilled fine particle product with 10.5% minimum average phosphate content.
- Guano Phosphate: A prilled fine particle product with 10% minimum average phosphate content.

Contact Paul Newton, Fertilizer New Zealand Ltd, South Island on 029 770 1771 for more information.



There are alternatives to Super Phosphate that can be applied through the Tow and Fert machines.

fertilizer new zealand Itd

Phosphate is an important input into any farming operation. There must be sufficient phosphate to feed the plant, BUT it also must be in balance with all the other elements that make up the total food that the plant needs.

Here is the major issue. How much is too much and what is too little? The way we have farmed for the past fifty years is about tipping on as much as we can afford and expecting all to be well. In some cases, it has led to an imbalance in the soil which instead of increasing growth has slowed it down.

Consider this; a ton of maize contains no more than 10 kgs of phosphate, and in dairy pasture the percentage of phosphate is a lot less than that. So maybe the discussion should be about the 'how-to' of making the phosphate that we apply become more available.

Some companies and individuals using scientific data have shown that they can grow the same amount of pasture or crops using less phosphate. If this is the case, then we should be working with them to advance farming in New Zealand. Given that a plant can only take up a small percentage of what is applied, the question to ask the bulk suppliers is what happens to the rest of the phosphate.

The average soil test generally only shows individual levels but does not complete the picture of how these levels correlate to all the other elements.

Soils have a range of structures and capabilities. Different types of soils hold differing amounts of water, and an example of this is that sand holds very little water but peat would hold a lot more. The same applies to phosphate. Different soils hold more phosphate than others. Using just one type of test to measure any element probably is not the best practice.

When it is time to plan for a phosphate application, due consideration should be given to which type of phosphate would be best for your own farming operation and how this would be spread. For example, some phosphates are acid based and water soluble, while others are based on calcium. They may be a solid product, or could be in liquid form, and in various situations either would work. In several countries, liquid is a preferred option as it goes on cleanly with very little drift. It is applied efficiently and most of it is taken up by the plant, which is the reason why seemingly so little can do so much.

Fertilizer New Zealand Ltd, have products in the form of their pelletised RPR - P365 and Guano phosphate range that can be spread through all Tow and Fert machines, but also a full range of liquid fertilisers, fish, seaweed and humates to help farmers balance their farm nutrient inputs.

ARE YOU READY FOR THE REGULATIONS?

THE 190 UNITS OF N/HA LIMITS ARE JUST AROUND THE CORNER.

By Michael Smith, Tow and Fert Sales Manager

Tow and Fert users are realising real gains, savings, and increased grass growth in spite of reducing their fertiliser inputs.

The fertiliser market currently seems to be in a state of 'flux'.

Some farmers have told me their fert reps have recommended that they "fill the tank" by applying MORE fertiliser now before the restrictions kick in. This is madness but speaks to the volume-based sales game many of the larger fert companies are in.

By contrast our customers that have purchased Tow and Fert machines in the last year to help them achieve the 190 units of N/ha cap are already showing it can be done.

Here is how one farmer has gone below the 'N' limitations already, grown more grass and produced 6% more milk:

FARMER 1

272 HA FARM, 960 COWS

Prior to owning a Tow and Fert (Prices as at 3/3/2020)

Rotations per year	No. of Tonnes	Cost of Inputs/Tonne	Total Cost of Inputs	Units N/ha
9 rotations per year of urea @ 60kg/ha/round	146.88 Tonne	\$640/T	\$94,003.20	248.4
2 rotations of maintenance fert @150kg/ha/round	81.6 Tonne (50% DAP, 50% MOP)	\$765.50/T	\$62,464.80	26.4
		Total	\$156,468.60	274.8

After shifting to the Tow and Fert System (Prices as at 3/3/2020)

Rotations per year	No. of Litres	Cost of Inputs/Tonne	Total Cost of Inputs	Units N/ha
1 rotation in spring UAN @ 15 Litres per ha	4080	\$1.34/Litre	\$5467.20	7
1 rotation SOA @ 50 kg + UAN@ 10 litres/ha	13.6 Tonne SOA/2720 Litres UAN	SOA \$419/TUAN \$1.34	\$9343.20	15
7 rotations urea 38 kg/DAP 10 kg/MOP 10 kg brew	110.432 Tonne mix	\$682.53/T mix	\$75,373.15	134.68
1 rotation SOA @ 50 kg + UAN@ 10 litres/ha	13.6 Tonne SOA/2720 Litres UAN	SOA \$419/T UAN \$1.34	\$9343.20	15
1 rotation Autumn UAN @ 15 litres per ha	4080	\$1.34/Litre	\$5467.20	7
		Total	\$104,993.95	178.68

In the tables shown here it is easy to see how **this Tow and Fert user went under the 190 cap in one season and in the process saved over \$50,000.00.** Additionally, our clients are seeing an increase in dry matter production across their farms which clearly has benefits to their bottom lines.

Change is inevitable and Tow and Fert users who have made the change are seeing the benefits already.

WOMEN IN DAIRY

MEET TWO WOMEN CHANGING THINGS UP DOWN ON THE FARM

Amy Stokes

Farm Manager, Stokes Family Farms. Waikuku Dairy Farm, 400 Cows, 190,000kgs Milk Solids. Fernside Farm, 1000 cows, 450,000kgs Milk Solids.

Seeking change, Amy Stokes and the family farms made significant changes to grow more grass and produce more milk.

Just outside of Christchurch, Amy Stokes runs the family farm at Waikuku. Consisting of a 400 Cow operation at Waikuku, Amy also assists the team up at the larger 1000 Cow dairy farm at Fernside. Amy has always run an efficient operation when it came to fertiliser inputs. However, Amy knew they could do better and so in 2019 at the South Island Field Days began the search for more environmentally friendly ways of managing their farm inputs.

Amy says "We made our way down to the Tow and Fert site and thought it was a clever and impressive machine."

The idea planted a seed and shortly after the Field Days visit Amy began to investigate the Tow and Fert further. It was not long until Amy decided that she would take the leap and purchase a Tow and Fert Multi 1000 to use on their smaller farm to test what they could do.

"We had wanted to find something that meant we didn't have to dust paddocks because it was a job that everyone hated. The Tow and Fert fixed that. We could spray 5-6 days ahead of the cows and we knew the results were better than we were getting with the dusting."

> "We were a little nervous about applying fert at first so through the springtime we just started out putting on Mag Oxide and Lime Flour following the cows."



fertiliser system using the Tow and Fert.

Georgie Galloway

Farm Manager, G.S. Marshall Farm Invercargill. Mixed Farming 160 hectares. Growing Kale and grass for Silage.

CASE STUDY

A change in fertiliser program and application technique yields big improvements in farm performance.

In 2015 Georgie Galloway joined Graham Marshall and his partner Gail as farm manager on their mixed farming 160-hectare farm just outside of Invercargill. Georgie had worked for Graham for some time but joining the farm as Farm Manager full time was a change welcomed by both parties.

It was not until a March application 3 years into her role as Farm Manager, when Graham applied solid Urea onto a Kale crop, that the trigger to change was pulled. The story goes that Graham got halfway through applying solid Urea to a 5 hectare paddock before running out. Georgie explains.

"Graham thought to himself 'Yep, I'll notice that in 2-3 months for sure.' There should be a big deficit in crop growth (on one side of the paddock), and we thought that it would hurt our production."

However, 2-3 months later Georgie says there was no difference at all, the side of the paddock that did have solid Urea applied had grown no more than the side that hadn't.

"So that was our main trigger for why we would look at something different."

It was shortly after this that Georgie and Graham were approached by the team from Fishlt.

Georgie says "We have not put any Urea on our grass this season. We don't need it. We are three years into our FishIt and Tow and Fert journey, and we are building up our soil health nicely."



For Georgie Galloway changing to foliar application of Fishlt fish fertiliser through a Tow and Fert has yielded impressive returns across the mixed farming 160 hectare farm.

MILK PRODUCTION

FOLLOW UP CONTINUES TO INCREASE.

DRY MATTER GROWTH IS INCREASING, AND SAVINGS CONTINUE TO BE MADE ON ALLAN MARX'S FARM.

Allan Marx, 115 hectare dairy farm, Taranaki.

In Volume 3 of the Tow and Fert Times we profiled Allan Marx and his conversion to using the Tow and Fert for the application of his fertiliser programme. At the time Allan had made the decision to move to the Tow and Fert and was seeing significant results and benefits on the farm and in the VAT.

18 months on we decided to check back in with Allan to see how he was getting on and how the farm was continuing to perform.

Q: So, Allan, since we last saw you, 18 months ago how has your fertiliser programme changed?

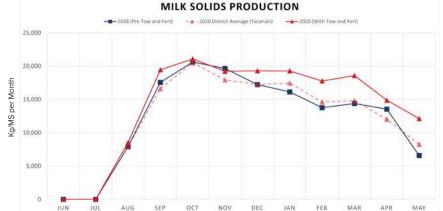
Allan: "I've been experimenting a lot and have now settled on a programme that includes Lime Flour, Pot Ash, Urea, Humates, Molasses, Seaweed extract, Cobalt Sulphate, Selenium, Magnesium Sulphate and Fish Hydrolysate. So, I've kept experimenting with different products and the results I am seeing are proof that it is working."

Q: What are the changes you are seeing on the farm?

Allan: "We have an awesome clover cover and plant health. The clover is prolific, and it is strong and vigorous. Our soil health is getting better and better. I have a massive worm population, absolutely massive and we are seeing increasing levels of good bacteria and fungi. Basically, our soil is just coming alive. It's real good. I have got increasing soil K so this season I am able to back off on the application of K. I've never used so little."

Q: This must translate into significant savings on the farm in terms of inputs? Would you mind sharing approximately how much you

Allan: "Once you factor in the additional products I now use, I am still saving around 25% or around \$30K a year. So it is significant, and that is before any spreading costs."



Q: How has farm production increased over this time?

Allan Marx

Allan: "We are simply producing more grass and more milk. You can see from the graphs that the farm here is outperforming the average in the region, so I am really happy with progress. The farm is just getting better and better."

Q: You've developed this system and recipe by trial and error, would you recommend this to farmers?

Allan: "Absolutely, I've continued to change the recipe in the Tow and Fert and I now have a real thick 'slurry' that is applied. The Tow and Fert is the only machine that can apply all the products I use from one tank. Farmers need to be bold and give things a go."



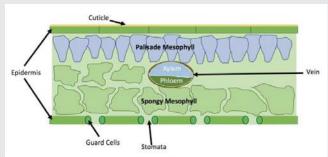
LIQUID FERTILISER IS **EXPENSIVE**

If you are carting water like some of the big players in the NZ fert game, then yes it is expensive. But using a Tow and Fert means you can dissolve your solid Urea in the tank and use less. So it will actually SAVE YOU MONEY!

See page two in this Tow and Fert Times for the savings one farmer has made.

PLANTS DON'T HAVE TEETH, THEY CAN'T TAKE UP FERTILISER THROUGH THE LEAF

Of course plants don't have teeth. But what they do have are cells that have space around them allowing them to absorb and take nutrients from products that hit the leaf. So yes, plants can and do take up fertiliser through the leaf.



Above: The absorption of nutrients takes place through the grass stomata and epidermis.

Amy Stokes story continued from page 3

Amy explains thats the results came quickly "We noticed less metabolic issues and less down cows. The cows just seemed happier coming into peak milk and we carried that on right through to mid-December just because it was an easy task. We know we are getting better results and it is way easier to do as well."

As her confidence grew Amy began to apply the farms Urea through the Tow and Fert. From there the team have found different products that can be added at the same time.

Once the team had gotten to grips with using the machine on the smaller farm in Waikuku Amy wanted to see if they could make the same improvements on the farm at Fernside.

"We quickly found the Tow and Fert Multi 1000 didn't go the distance, it was just too small." Amy laughs.

"We could see pretty quickly that there would be a benefit to having a bigger machine, so we purchased the Multi 4000 to be able to cover a larger area quicker up at Fernside. We haven't looked back since."

Down at the Waikuku farm Amy and her team used to spread all their own Urea using a SAM spreader. The Tow and Fert has now replaced this and the enthusiasm to use the Tow and Fert machines has almost become a competition,

"I love using the Tow and Fert and I feel good about using it. We are putting on less Urea and seeing what it is doing to the farm. The grass is happier, the cows are happier and whether it is me, my Dad or my brothers applying the Urea we are all happier doing it."

"It's been pretty good seeing the results on the farm. It makes you feel pretty good."

For Amy and the team, the results have been a pleasant but not unexpected, surprise.

"We are milking up to 30 extra cows going into May and are not having to feed out huge amounts. The grass is definitely growing better, and we have been able to keep more cows on throughout the season which has been awesome."

"Last month we were 9% up for milk production and actually a couple of days ago we reached the same milk production we did two years ago, and we still have one month to go."



thing that Amy did on the farm. The result was a decrease in metabolic issues and less down cows.

With regulation pending Amy says that her farms are well under the cap of 190 units of N per hectare.

"It might seem counter intuitive at first, but we have seen the results on the farm, and we would argue that we are getting better and better by changing our systems and moving away from the status quo. **Hopefully, this will become the new status quo.**"

"I love knowing that what we are putting on to our farm is something that is good for the environment, good for the cows, is good for the soil and it just makes me feel like I am doing my part to make the dairy industry less of the devil it is sometimes portrayed to be."

"I love driving the tractor with the Tow and Fert on it. It just makes my life better I reckon."

says Amy



Georgie Galloway's story continued from page 3

Pointing to the grass in the paddock she is standing in Georgie comments, "this grass here has had three cuts of baleage off it and after each round of baleage we are putting on 30L of Fishlt through the Tow and Fert." The grass is a deep green colour and looks and feels rich and wholesome.



For Georgie the benefits to the farms production have been significant. Georgie explains,

"In the Kale paddocks we have put on 120kgs of Urea (in liquid form) total. In the past we would have put on three times that. Using Fishlt with the Tow and Fert we have better pastures and better crops so all in all it has been a good business investment."

As well as the reduction in fert costs from around \$100,000.00 per annum to just over \$50,000.00 per annum, Georgie explains that the increase in production has allowed them to produce more bales of silage.

"Now we make about 3000 bales on the farm, before we had to buy in about 500 bales a season. Since we have had the Tow and Fert we haven't had to buy in any bales and all of those 3000 bales go into the winter crop to feed the cows."

Another benefit Georgie has noticed on the farm is that in the last three years there has been no need for pesticides. Georgie believes this is due to how healthy the soil and plants are.

For Georgie the change in the way they are doing things on the farm has been profound.

"Obviously, it coincides with the change to Fishlt, but if we didn't have the Tow and Fert we couldn't apply the Fishlt. It has changed everything. The grass is so much healthier, the crops are better, and both the grass and kale hold on longer. We really rate it."

And to other farmers considering changing their systems to incorporate a Tow and Fert, Georgie has this to say,

"Obviously we are not solely a dairy farm, but I think this is a no brainer investment."

Georgie continues "It is all about starting the journey with the Tow and Fert. It has definitely opened our eyes to different stuff and its good. It's real good."



The Tow and Fert Range.



MULTI 500



MULTI 1000



MULTI 1200



MULTI 2800



MULTI 4000

For more information or to BOOK A FREE on-farm DEMONSTRATION CALL 0800 337 747 or email sales@towandfert.co.nz