Ballance agri-nutrients

Together, Creating the Best Soil and Food on Earth

Grow

South Island
Spring 2024

Contents

Ballance agri-nutrients

Ballance Agri-Nutrients is one of New Zealand's leading fertiliser manufacturers. A 100 percent farmer-owned co-operative, the company has approximately 18,000 shareholders and sells around 1.5 million tonnes of product each year, representing a turnover close to $900 million. Its products include imported and locally manufactured fertilisers, the majority of which attract a rebate for shareholders.

ballance.co.nz
0800 222 090

Super Air

Since its inception in the 1980s, Super Air has evolved into one of New Zealand's leading agricultural aviation companies. In addition to aerial fertiliser application, Super Air has developed a world-class reputation for aircraft engineering and innovation. Wholly owned by Ballance, Super Air services all of the North and South islands.

superair.co.nz
0800 787 372

Introducing Ballance CEO, Kelvin Wickham

We find out a bit more about Ballance chief executive Kelvin Wickham and his aspirations for the co-op.

The opportunity to lead a strong co-operative with a significant, important role in New Zealand's economic future drew Kelvin to the role at Ballance.

"I look forward to applying my industry experience to connect the importance of sustainably produced food with the global consumer," he says.

"We want to safeguard the prosperity of New Zealand's agricultural community by ensuring the supply of essential nutrients for better soil nutrition. There are few organisations in New Zealand that have this level of impact, and I'm fortunate to have the opportunity to lead this co-operative into the future.

"I'll be working hard to connect my knowledge of global consumer trends with what's happening in New Zealand to ensure we continue to prosper."

A proven co-operative leader having worked for Fonterra for the last 34 years, Kelvin's journey there saw him in various leadership roles throughout the world, including New Zealand.

Based in Amsterdam in his most recent position, he led all business activities across Africa, Middle East, Europe, North Asia, and the Americas. Additionally, he provided global oversight for the Active Living Functional Nutritional Unit and the renowned NZMP brand, the biggest dairy ingredients selling and marketing entity in the world.

He has lived in Shanghai where he led Fonterra's Greater China business across the full value chain from farms to brands. In an earlier Supplier and External Relations role he worked closely with farmer shareholders, with responsibility for Fonterra's farmer facing teams as well as engaging with key New Zealand government and external stakeholders.

Ballance Agri-Nutrients: showcasing value in the co-op model

Since its establishment in the 1800s, the co-operative model has been the main vehicle through which New Zealand's farmers and growers have traversed market imbalances and created surety of supply.

Power in numbers and a collaborative spirit underlie the success of the co-operative model, achieving more for the many than any one person could alone.

A fundamental pillar of the co-operative model is connection with the wider community. There are families to support, land and livestock to nurture, and a legacy to continue for generations to come.

Farmers and growers are under immense pressure to create on-farm efficiencies, decrease their environmental footprint and maintain quality of output while continuing to put food on tables around the world.

A lot has changed since the birth of the co-op, leading some to question whether it's fit for purpose in today's increasingly volatile world, or a soon-to-be relic of the farming days past.

As a co-operative made up of 16,000 shareholders, our responsibility is to deliver value to our shareholders. In this way the co-operative aims to be responsive, adapting to the needs of our shareholders, which evolve with our ever-changing world.

For Ballance shareholders, one key benefit is the assurance of a reliable supply of quality nutrients at the best possible prices. Quality fertiliser products help keep our standard of exports high and the cycle of prosperity turning.

Local manufacture enables us to create value for shareholders by producing and selling greater volumes of products through our manufacturing sites, while also minimising potential disruption caused by an ever-changing global market.

As well as making commercial sense, this strategy gives customers the benefit of new, innovative, locally manufactured fertiliser products as well as supporting employment security and development.

We continue to innovate to create digital products and solutions to help our farmers and growers manage their application more efficiently, reducing costs and protecting the environment.

We stay close to our customers and communities so we can understand their challenges and needs as they evolve. We read the same news, drive the same streets, attend the same school fairs and feel many of the same pressures as our shareholders – what matters to them, matters to us.

We're part of the social fabric of rural New Zealand too and we feel the same responsibilities you do to make it strong.

Ballance is a strong co-operative with strong governance, focused on ensuring decisions made today have a positive impact for shareholders, now and into the future.

Working for you

Ballance advocates for practical, science-based regulations.

Significant changes to national and regional regulations over recent years have continued to impact how farmers and growers manage their land.

While most agree regulation is important, the volume of regulations and speed of implementation can create headaches.

In recent years, much discussion has focused on the Government's Essential Freshwater reforms of 2020, which introduced major changes around fertiliser and nutrient use, along with winter grazing and stock exclusion.

Rules around greenhouse gas emissions and biodiversity have also raised concerns for many, and regional policy changes add to what farmers and growers have to contend with.

With so much going on, it can be overwhelming for individual landowners to keep abreast of policy changes, let alone make submissions to influence them.

Ballance has long played an important role in advocating for responsible, sustainable nutrient use, which is essential for our farming and growing systems, and for producing food and fibre for New Zealand and the rest of the world.

Our advocacy work began when fertiliser was still considered a contaminant under the Resource Management Act, and led to the development of Codes of Practice in the early 1990s. Over the years, we've consistently advocated for outcome-based policies and rules when required, and use of good management practices.

Ballance, together with industry bodies such as the Fertiliser Association of New Zealand (FANZ), works to ensure rule makers consider scientific evidence and data. This includes New Zealand's long term research and trial sites which have documented fertiliser and farming practices for over 70 years, supported by robust science-based modelling tools such as Overseer.

Our advocacy tends to focus on ensuring:

1. **Rules consider and acknowledge the wealth of evidence and data** that has gone into developing industry decision support tools and guides (e.g. *FANZ Code of Practice for Fertiliser Nutrient Management*, 2023).
2. **Specific rules around nutrient use (particularly product, placement, rates and timings of applications) are grounded in science**, will meaningfully improve environmental outcomes relative to the cost of implementation, and are practical to implement (see *Science-based arguments sidebar*).
3. **Farm environment plans are recognised as the best tool for managing on-farm risk**, rather than blanket regional and national rules which can lead to unintended consequences which do not benefit the environment (see *Our views on farm environment plans sidebar*).

While our advocacy and submissions don't always result in the outcomes we hope for, Ballance continues to work on behalf of its shareholders to ensure rules around fertiliser and nutrients are practical, while still contributing towards improved environmental outcomes for fresh water, climate and biodiversity.

FOR MORE INFORMATION

For questions about what regulation means for your farm or orchard system, or to hear more about what Ballance does in this space, contact our Farm Sustainability team on farm.sustainability@ballance.co.nz. See page 7 for more on the Farm Sustainability team, and page 22 for policy updates.

Science-based arguments

In Waikato Plan Change 1, Ballance opposed the 30 kg N/ha application limit, as science shows the benefits and utilisation of nitrogen (which decreases the environmental risk) increase linearly up to 50 kg N/ha, and only begin to decrease at about 60 kg N/ha.

We also challenged blanket restrictions on fertiliser in certain months (e.g. June and July), as utilisation is closely tied to soil temperature and moisture, rather than to specific months. This is particularly relevant in regions with significant geographic and topographical variation.

Rules of this type can result in perverse outcomes, such as farmers needing to use more supplementary feed such as palm kernel, at an increased cost and with potentially worse environmental outcomes.

Our views on farm environment plans

Ballance sees farm environment planning as a journey of continuous improvement, which given the often significant cost of environmental mitigations, requires a longer term view on progress, with the most immediate risks prioritised.

Farm environment plans aren't a new concept, and many farmers have been on this journey for decades. It's important to recognise these early movers and adopters, encourage further progress, and not penalise them for their hard work, as grandparenting schemes often do.

Preventing P problems

SurePhos

SurePhos keeps more fertiliser phosphorus (P) in the soil for pasture to use, reducing losses to profit and the environment.

As the costliest fertiliser nutrient, P is often the first to go when budgets are tight.

Although this may not initially impact productivity, long term studies have shown soil fertility, pasture production and associated animal production decline over time when P fertiliser is withheld[1,2].

In addition to P fertiliser's cost, applying it without losses can be difficult. This is because commonly used P fertilisers such as superphosphate and DAP contain mainly plant available, water soluble P, which can contribute to losses in runoff if applied when circumstances aren't ideal.

If P runoff enters waterways, it can lead to excessive growth of aquatic weeds and algal blooms. While good management practices help to minimise P losses, application can still be constrained by weather, timing and proximity to waterways.

SurePhos is a P fertiliser that slowly releases P over a period of months, so more P is retained in the soil over a longer period of time for pasture uptake, and losses to profit and to the environment are minimised. In addition, research over 3 years has shown SurePhos maintains annual pasture production at an equivalent level to more water soluble forms of P fertiliser such as superphosphate[3].

The proportion of P runoff loss from P fertiliser is directly related to its proportion of water soluble P, and most of the P in SurePhos is water insoluble (also known as citric acid soluble P) (see Table 1). Figure 1 explains how SurePhos works.

As well as reducing losses to profit and the environment, SurePhos provides greater flexibility of use and is cost-effective compared to other reverted P fertilisers such as Serpentine Super. Its higher P content means less product is needed, and cartage and spreading costs are lower (see Table 1 for a comparison of SurePhos and Serpentine Super). SurePhos can also be mixed with other products such as SustaiN, allowing a varied rate of nitrogen to be applied depending on need.

Ballance developed SurePhos with support from the Primary Growth Partnership.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist.

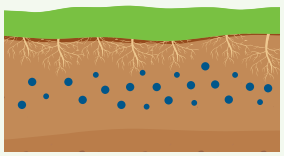
[1] MB O'Connor, CE Smart and SL Ledgard 1990. Long term effects of withholding phosphate application on North Island hill country: Te Kuiti. Proceedings of the New Zealand Grassland Association 51: 21-24

[2] Lambert MG, Clark DA, Mackay AD 1990. Long term effects of withholding phosphate application on North Island hill country: Ballantrae. Proceedings of the New Zealand Grassland Association 51: 25-28

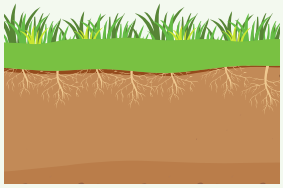
[3] McDowell RW, Smith C, Balvert S 2011. The environmental impact and agronomic effectiveness of four phosphorus fertilisers: Report for Ballance Agri-Nutrients, October 2011

[4] Dexter M, Kear M, Lucci G 2019. P leaching from SurePhos, Superten and Serpentine Super fertilisers in a laboratory evaluation: Report prepared for Ballance Agri-Nutrients by AgResearch Limited

When SurePhos is manufactured, water soluble P is converted into more stable, water insoluble P (known as citric acid soluble).



When SurePhos is applied to pasture, microbial activity and soil chemical processes gradually convert the citric acid soluble P into water soluble P.



P is gradually released to pasture over a period of months, so less is lost in runoff (or leaching).

Figure 1 **How SurePhos works**

Significantly reduces P losses

Independent testing by AgResearch shows SurePhos can reduce P losses by up to:

- 75 per cent for P lost in runoff (compared to superphosphate products)[3]
- 83 per cent for P lost by leaching (in soils prone to P leaching i.e. low ASC soils <20) in a lab trial[4].

Table 1 **P content and cost of SurePhos (South Island) and Serpentine Super**

	SurePhos (South Island)	Serpentine Super
Phosphorus	8.3%	6.8%
Water soluble	23% or less	30%
Water insoluble (citric acid soluble)	Over 75%	70%
Cost of product*	$488/T	$435/T
Cost of product if applying maintenance P at 24 kg P/ha**	**$141/ha**	**$153/ha**

*ex GST as at 21 June 2024 ** excludes transportation and application costs

Sustainability sweet spot

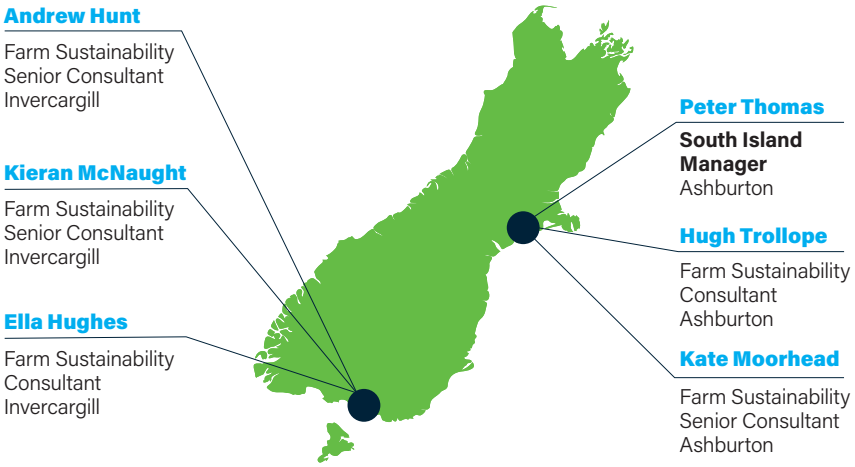
Farm Sustainability Services

No matter where you are on your environmental journey, the Ballance Farm Sustainability team can make things easier.

With local experts who understand the rules and industry leading tools and advice, the Ballance Farm Sustainability team's flexible, tailored approach makes progressing on your environmental journey easier.

We work with you to help find the sweet spot, so you can be productive, profitable and sustainable into the future. Our team works with key industry partners and regulators to ensure any work you do on your farm is effective and fit for purpose.

Our wide range of services are outlined below.



The Farm Sustainability team's local South Island experts

Nutrient budgets

Nutrient budgeting provides environmental baselines. We also run scenarios and benchmarking to understand how your farm is performing, and how system changes would impact your productivity and environmental footprint.

Farm planning

Our farm planning services range from assistance with simple winter grazing plans, through to freshwater farm plans, and more complex integrated farm plans.

MitAgator

Our MitAgator software takes away the guesswork – mapping your critical source areas, and using published science to test the effectiveness of mitigation strategies such as riparian fencing and planting, or wetland creation.

The Farm Sustainability team can also provide you with support for industry premium schemes, consent applications, and any other farm environmental queries.

FOR MORE INFORMATION

Contact farm.sustainability@ballance.co.nz or 0800 222 090.

Valuable tool to guide us forward

Sarah and Basil McLean run Progress Valley Farm, farming 1187 ha near Tokanui in the Caitlins region.

The stock they run include Headwaters sheep, which are bred specifically for their unique fat constitution. Offspring are finished on chicory to produce premium Lumina Lamb, sold by a range of high-end retailers around the world.

As suppliers of Lumina Lamb, the McLeans need to have to a high level of sustainability through the New Zealand Farm Assurance Programme Plus (NZFAP+).

But beyond this, the couple are committed to continually improving their sustainability, including planting native vegetation on retired unproductive areas, and looking after the property's existing bush areas and fresh water.

"We knew we were heading in the right direction on a basic level, but wanted more of a deep dive into what we could do to farm more sustainably. It was clear we needed guidance and knowledge which was industry based and personalised for our land and farming systems," says Sarah.

Basil and Sarah engaged Kieran McNaught from the Farm Sustainability team to work with them to create a farm environment plan and nutrient budget which covers the NZFAP+ gold requirements.

"Kieran made the whole process super easy, concise, accessible, transparent and easy to follow. From the initial on farm consultation to the finished product, he helped us realise we could obtain a highly sustainable farming system. Kieran's knowledge was and has been invaluable. The finished product has been and will continue to be a valuable tool to help guide us forward, supporting us with our ongoing sustainability journey."

Progress Valley Farm

Animal Water Plant Soil

Future Ready Farms

FUTURE READY FARMS
Creating a lower emissions future
Brought to you by Ballance in partnership with MPI

Ballance is developing solutions to help farmers and growers continue operating into the future.

Ballance is leading the Future Ready Farms programme, to provide farmers and growers with solutions for further reducing their environmental footprints.

Future Ready Farms, a 7 year partnership with the Ministry for Primary Industries, is now entering its fifth year. Once complete, the $25 million programme is expected to provide economic benefits of up to $1.06 billion to New Zealand.

The partnership will deliver new sustainable technologies, products and knowledge to the primary industry, with the aim of decreasing the environmental impact of food and fibre production in New Zealand. This will make a meaningful contribution to our country's emissions reduction targets

The programme comprises 13 projects, and associated extension and community engagement, which will benefit the dairy, sheep and beef, forestry, horticulture, arable and fertiliser manufacturing sectors. It will also help to meet consumer expectations into the future.

The outcomes of the programme will allow farmers and growers to continue to lead sustainable food and fibre production on the world stage, and increase public confidence in the sector so that social licence is assured.

To achieve these outcomes, the programme's high levels goals are to:

- Reduce greenhouse gas emissions
- Improve water quality
- Reduce agrichemical use.

Projects underway

Nutrient decision support

The data and tools generated in this project will help Ballance customers make more informed decisions on the products they choose to use. When considering a fertiliser product, information will be available on its life cycle analysis (evaluation of its environmental effects over its entire life, from raw material extraction right through to application and field emissions) and economics. This project will also support Ballance decisions about new product development.

CO_2 Reduce and Capture

The CO_2 Reduce and Capture project is exploring how the natural process of rock weathering can be harnessed and used, at a large scale, to capture carbon dioxide (CO_2). As silicate rock weathers, it naturally captures CO_2 from the atmosphere. The project aims to develop a dual-purpose liming product for agricultural soils that also captures CO_2 to offset farm emissions. The plan is to have the product available in spring 2026.

Forestry

A new nitrogen-based product for pine trees – which will have a herbicidal effect on weeds while providing nutritional benefits to the trees – is being developed. The product will potentially be manufactured at the Ballance plant in Kapuni.

Animal health

A novel animal remedy, that improves animal health and welfare, as well as productivity and environmental efficiency, is being developed. The remedy is an animal feed additive that is based on a functional micronutrient which stimulates the natural production of an amino acid. This leads to improved animal growth, reproduction and feed utilisation.

Nitrogen inhibitors

Work on nitrogen inhibitors is identifying and testing the efficacy of nitrogen (urease and nitrification) inhibitors that can be added to fertiliser to reduce nitrogen losses. The inhibitors would reduce emissions of the greenhouse gas nitrous oxide through nitrification, and the conversion of urea into ammonia, and eventually ammonia gas. They would also decrease nitrogen losses via leaching.

Dairy effluent treatment

This project is developing a solution to help farmers manage farm dairy shed effluent. It will identify sustainable, natural chemical products to support better management of the treatment and application of effluent to land. The products will help farmers comply with consents and reduce water usage, as well as provide greater flexibility in managing effluent nutrients on farm. The products are expected to be available this coming summer.

Soil Health

Phase 1 of the Soil Health project is already complete. A new test called Soil Health Check, which can be done in the same way as standard fertility testing, provides farmers with valuable information on soil's nutrient fertility as well as its biological properties. For more information see ballance.co.nz/myballance/soil-health-check.

Phase 2 of the project is developing a tool to help guide management decisions, which is expected to be available in autumn 2027.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist.

Parasite control

As part of controlling parasites and reducing the need for the drenching of stock, this project is developing a novel method for controlling animal parasites using a compound applied to pasture. The aim is to have a product available in autumn 2027.

Hort & Arable support

The Hort & Arable project is working on decision support tools to optimise the timing and rate of nitrogen application, and to support the use of fertilisers to build plant resilience against pests and diseases. The tools are expected to be available in autumn 2026.

Sustainable vegetables

By Andrew Barber, SVS Project Manager, Agrilink NZ

A new tool is making the invisible visible and helping growers improve their nitrogen use efficiency.

It's truly remarkable how collaborative efforts among growers can lead to innovative solutions for horticulture's key challenges.

In New Zealand, the vegetable sector is actively transitioning towards more sustainable production practices. Amongst a raft of practices in an extremely complex and ever-changing vegetable growing system, nitrogen (N) stands out as a key economic and environmental consideration.

The Sustainable Vegetable Systems (SVS) Project has developed a new tool that makes the invisible visible.

Measured numbers beat modelled numbers

The SVS Tool provides fertiliser decision makers with guidance on N applications by modelling N flows through complex vegetable crop rotations. These N flows include soil mineralisation, organic matter decomposition and immobilisation from the previous crops, N fertiliser, and starting and finishing soil mineral N levels.

Planning requires a model to project into the future, but it's the SVS Tool's ability to overwrite modelled numbers with measured in-season soil tests that has created a powerful decision support tool that reflects the current season's actual conditions.

Vegetable growing is extremely complex. All growers have an N fertiliser plan based on many years of experience. However, plans are for a typical season, and there's never a typical season. By integrating soil testing, the SVS Tool supports a grower's decision making to drive their crop to the end in the season they are facing here and now.

Environmental sustainability

Achieving environmentally sustainable vegetable production involves managing inputs to meet economic crop production needs, while reducing environmental impact.

Given the variability within fields, from field to field, and year to year, a sophisticated approach to crop management is necessary to reduce environmental impact and optimise production. The SVS Project delivered controlled experiments that informed the development of more accurate N flow models. This allows growers to better match N applications with crop demand, therefore helping to reduce N loss to the environment. Alongside this, 4 years of ground truthing using monitoring sites right around New Zealand built grower engagement and trust.

A tool to support decisions

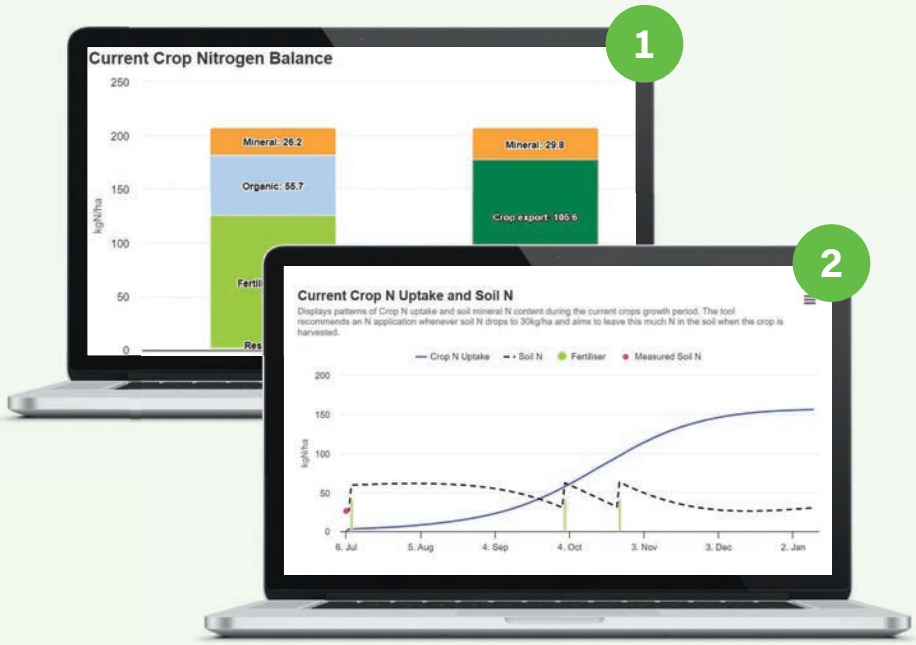
We anticipate that the user base of the SVS Tool will be both growers and their trusted advisors, including independent agronomists, fertiliser representatives, and researchers. Using the SVS Tool will give users increased confidence and awareness of soil N testing and soil-crop N flows, optimising management decisions such as fertiliser application (quantity and timing) and rotation planning (increasing the utilisation of crop residues).

Ultimately, the SVS Project has improved understanding of N management, enabling growers to improve nutrient use efficiency through the adoption of Good and Best Management Practices built upon years of experience and sound scientific knowledge.

The SVS Project was funded by the Ministry for Primary Industries, Potatoes NZ, Vegetable Research & Innovation, and HortNZ.

FOR MORE INFORMATION

The First Generation SVS Tool can be accessed at www.svstool.co.nz



Key outputs from the SVS Tool include an N budget (1) and crop and soil N curves (2). This example is from an onion crop in Pukekohe.

Focus your fert spend

By Jeff Morton, Consultant, MortonAg

How can you better afford fertiliser on your hill country farm?

Most hill country farmers now know that not being able to afford fertiliser will result in a lack of productivity from the second or third year onwards. There are no easy solutions to this problem, but I'd like to offer a few ideas that may work on some farms.

Let's start with short term changes that won't cost much, and then consider some longer term ones that will require more investment.

Don't spend more than you have to when liming and fertilising crops. Although a soil pH of 6.0–6.2 in the top 150 mm is optimal for crop yield, a level of 5.8–6.0 won't result in a significant yield reduction. A kale crop sown out of reasonable pasture growing a typical yield of 10T DM/ha will require no more than 150 kg DAP/ha down the drill at sowing, followed by a side dressing of 50 kg/ha of SustaiN 4 to 6 weeks after sowing. The rest of the nitrogen (N) required will be supplied from the mineralisation of organic N. Drilling phosphorus (P) with the seed will speed up initial growth of the crop. Also prioritise direct drilling or minimum tillage so the nutrients already in the soil aren't buried. This advice follows the principle that if returns are down and costs are up then the economically optimal yield is lower.

Super Air's SpreadSmart is a great way to prioritise where you apply your affordable P and sulphur (S) on hill country. Slope is the predominant factor, with annual P and S application only profitable on easy slopes where more legume is present, rather than on steep hill country. Steeper hill country can be maintained at lower soil Olsen P levels by applying P and S every 3 years. The technology also allows non-productive areas to be avoided for fertiliser application. Figure 1 (adapted from Gillingham pers comm, 2001) shows that about, on average, twice the value can be gained from applying P to easy rather than steep slopes. These practices can substantially increase the area you can afford to fertilise.

Lucerne sown on flat to rolling land has many persistence, N fixation and feed quality advantages, but another benefit that relates to nutrient demand is that optimal growth can be achieved at lower soil Olsen levels of up to 15 in the top 150 mm because of its extensive root system.

Cow collars around the neck on cattle have been shown to improve pasture utilisation when grazing hill country by encouraging the animals to graze areas like shady slopes and reducing the areas where they concentrate. They can also cause excreted N, P and S to be returned more evenly and reduce the requirement for fertiliser.

Now for the controversial topic of carbon farming. Studies have shown that growing trees on the poorest producing parts of the farm will be more profitable than grazing animals. So why not consider taking out these areas and plant them for carbon, with the help of investors if necessary, and use the income to buy fertiliser for the better performing parts of the farm. I know some of you will see this as heresy, but better some of the farm planted than the whole lot.

We all hope that lamb prices will return to their previously high levels, but I'd suggest that waiting for this to happen without trying to adapt is not an ideal strategy. Anyway, when and if they do, these suggested changes will still increase profitability.

FOR MORE INFORMATION

For more on SpreadSmart contact Super Air on 0800 787 372 or see superair.co.nz. The Fertiliser Association booklet *Fertiliser Use on New Zealand Forage Crops* is available at bit.ly/3Vw1y6C

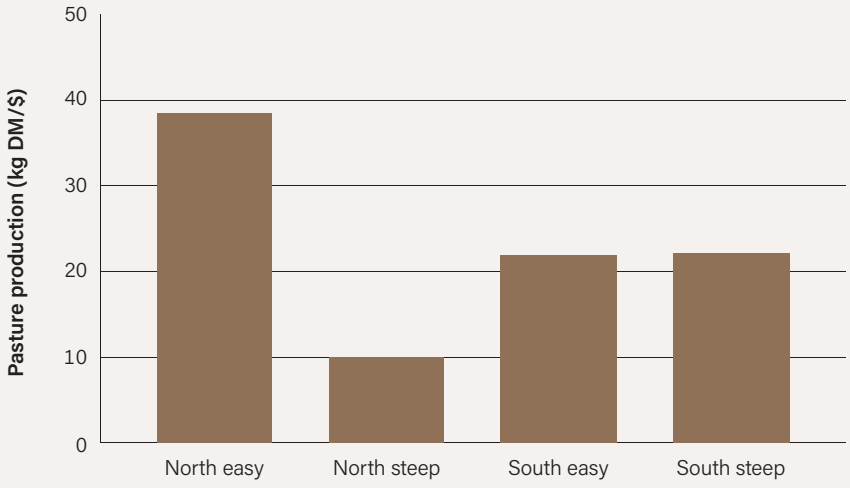


Figure 1 **Pasture production (kg DM/$) from phosphorus fertiliser, with a starting Olsen P of 9, on different slope types**

Award winning producers

The Ballance Farm Environment Awards celebrate farmer and grower achievement, showcase good practice and share positive stories. The Regional Supreme Winners for 2024 were announced earlier this year.

1 Northland

Dean Candy, Oromahoe Trust

Dean manages a 1050 ha sheep and beef farm operating under the Oromahoe Trust, a collective of 1500 shareholders.

Caring for the environment is central to every decision, and extensive riparian fencing, native planting and wetland protection have benefited the farm's fresh water.

The judges noted the Trust's understanding of its land capabilities and adaptation of systems to match, and that all parts of its farming operation are outstanding.

2 Auckland

Peter Rensen, Utopia Nurseries

Peter's 18 ha of nurseries in Pukekohe feature extensive riparian planting and over 4 ha of native bush, including one of the few remaining Raupō wetlands in the region.

The judges noted innovation and diversification as key ingredients in the nurseries' success, as well as Peter's passion and commitment to improving the property and leaving it in better shape than he found it.

3 Waikato

Alastair and Ann Reeves, Reeves Farms

As fourth generation farmers on a 605 ha mainly beef and lamb farm in Te Akau, the Reeves have a deep understanding of land and animal classes, and tailor farming practices and stocking policies to suit.

Together with the wider community they control possums across 155,000 ha, and share knowledge to empower their industry peers.

The judges noted their outstanding leadership within the community and sector, improved biodiversity and excellent guardianship.

4 Bay of Plenty

Blair Linton, Linda Ellison and Robert Linton, Te Ranga Farms

This farming family rears Friesian bull calves on their 296 ha Te Puke farm.

The farming system is optimised to match land use and class, and animal numbers and stock type are carefully managed to match the pasture growth curve. Protecting fresh water is a priority, and they're active in a catchment group.

The judges noted their family approach to gaining knowledge, appreciation of their environment and sense of place within it, open and productive communication, and connection to a supportive community.

5 East Coast

Simon and Josi Beamish and Hugo and Pip Beamish, Awapai

This family business operates a 2100 ha grazing and finishing farm west of Hastings.

Land class is matched to appropriate and sustainable use, and soils are carefully managed. Excellence in animal welfare is a priority, and international markets are targeted with quality products.

The judges noted they embrace innovation, and achieve premiums for their meat and wool products through producer supply programmes, which demand high environmental and biodiversity outcomes.

6 Horizons

James and Debbie Stewart and Dave and Jan Stewart, Stewart Dairylands

For Stewart Dairylands in Hiwinui, diversification is part of their business strategy. With 800 cows across 580 ha, their offerings include dairy beef, milk (for boutique cheese and ice cream) and farm tours.

The Stewarts seek continuous improvement and innovation in stock management, infrastructure and technology, are highly engaged in the wider farming industry, and take a proactive approach to challenges.

The judges noted they strive to exceed and lead industry standards, and place importance on succession planning and governance, looking ahead to the next 100 years.

7 Greater Wellington

Andy and Gemma Phillips, Motumatai

Since purchasing their sheep and beef farm, the Phillips have lifted livestock production and enhanced its natural beauty.

This has involved careful management of soil and pastures, pest and predator control, and fencing to protect waterways. Years of tree planting have resulted in significant areas of established native habitats.

The judges noted the business excels in all aspects of sustainability. Farm systems are aligned with physical resources, and continuous improvement in environmental sustainability is prioritised. Involving people for mutually beneficial outcomes, and mentoring and contributing to the community, catchment and industry are key.

8 Canterbury

The Guild and Dunbar Families, High Peak Station

Winners of the Gordon Stephenson Trophy 2024

Almost half of this 3760 ha property's income is derived from tourism and the remainder from sheep, cattle, deer and honey, with high-end products and experiences to add value.

The judges were impressed with their approach to regulation, knowledge of the property's soil and topography and winter grazing management. Natural

wetlands, QEII National Trust covenant areas, and riparian corridors are all well protected.

The judges noted High Peak Station is one of the most diverse high-country businesses they've seen, with the Guild and Dunbar families being true guardians of the land.

9 Otago

Angus Barr and Tara Dwyer, The Wandle, Lone Star Farms

As managers of The Wandle, Lone Star Farms in Strath Taieri, Angus and Tara focus on producing quality over quantity while caring for the land.

The judges noted that, together with their farm team, they've achieved much in a short period. They show exceptional people management, encouraging their team to be part of the business and the wider community, and strive to improve the farm's performance and enhance biodiversity, treating it as if it was their own.

10 Southland

The Miller Family, Roslyn Downs

Achieving high levels of production efficiency is the Miller family's focus on Roslyn Downs in Glencoe.

They've also significantly increased native species and planting, adding new areas and connecting and enhancing existing sites. Fencing off large areas for retirement and amenity planting, and creating several wetlands and sediment traps have helped preserve biodiversity.

The judges noted the Millers have created a thriving ecosystem that supports native species and reduces erosion. They also commended their data-driven approach which informs decisions that enhance both environmental stewardship and profitability.

FOR MORE INFORMATION

Visit nzfeawards.org.nz for more on the annual Ballance Farm Environment Awards programme, run by the New Zealand Farm Environment Trust.

Ballance Farm Environment Awards®
Promoting Sustainable Farming and Growing

Herbage testing

Herbage tests are an extremely valuable and underutilised tool that complement soil tests.

If productivity declines below expectations a macro- or micronutrient deficiency or both could be the issue. A shortage of any essential nutrient affects plant growth, which subsequently affects grazing livestock.

Herbage testing provides the most reliable means of identifying micronutrient deficiencies (except for boron for brassica crops).

Soil tests cannot supply a sufficiently accurate picture of micronutrient status, partly because there are such minute quantities of these elements present in soil, and partly because complex interactions exist between different micronutrients, and these are further complicated by other factors such as soil pH and parent material. For example, plants growing in high pH alkaline soils (which can occur due to excessive lime application) are susceptible to induced plant boron, zinc, copper, iron and manganese deficiencies.

When taking herbage samples, it's essential to know why the test is being done, as this influences the type of sample taken. Two types of herbage tests are commonly used in pastoral farming:

- Clover-only: Clover serves as the 'canary in the mine' for pastures, as legumes are more sensitive to nutrient stress than grasses. This makes it an early indicator of nutrient deficiencies. A clover-only test can examine not only macronutrient levels but also micronutrients such as molybdenum and boron, which are essential for vigorous clover growth and, consequently, for improving overall pasture quality.
- Mixed pasture: This involves sampling a diverse selection of species within the sward. The results provide insight into the nutritive value of the plant consumed by animals and can be helpful to know whether it is supplying sufficient nutrients to support animal health. In addition to monitoring essential macronutrients like potassium and magnesium, mixed pasture tests also assess levels of micronutrients such as cobalt and selenium.

Herbage testing should be conducted prior to grazing and preferably during the active phase of plant growth when temperature or moisture are not limiting. See Figure 1 for timing and test type for different micronutrients.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist.

The following practices are important for getting meaningful results from herbage testing pasture:

Use clean shears to cut pasture at grazing height i.e. top two-thirds of the plant.

Collect a bulk sample containing 15-20 sub-samples for each representative paddock within a farm block, ensuring the blocks reflect the various soil types, topography and farm management practices. The bulked sample should weigh approximately 500 g. Avoid sampling areas that are not typical, such as water troughs, dung or urine patches, gateways, fence lines and irrigation runs.

Bag and label samples and send to the laboratory as soon as possible, ideally on the same day, or refrigerate to minimise deterioration until they can be sent.

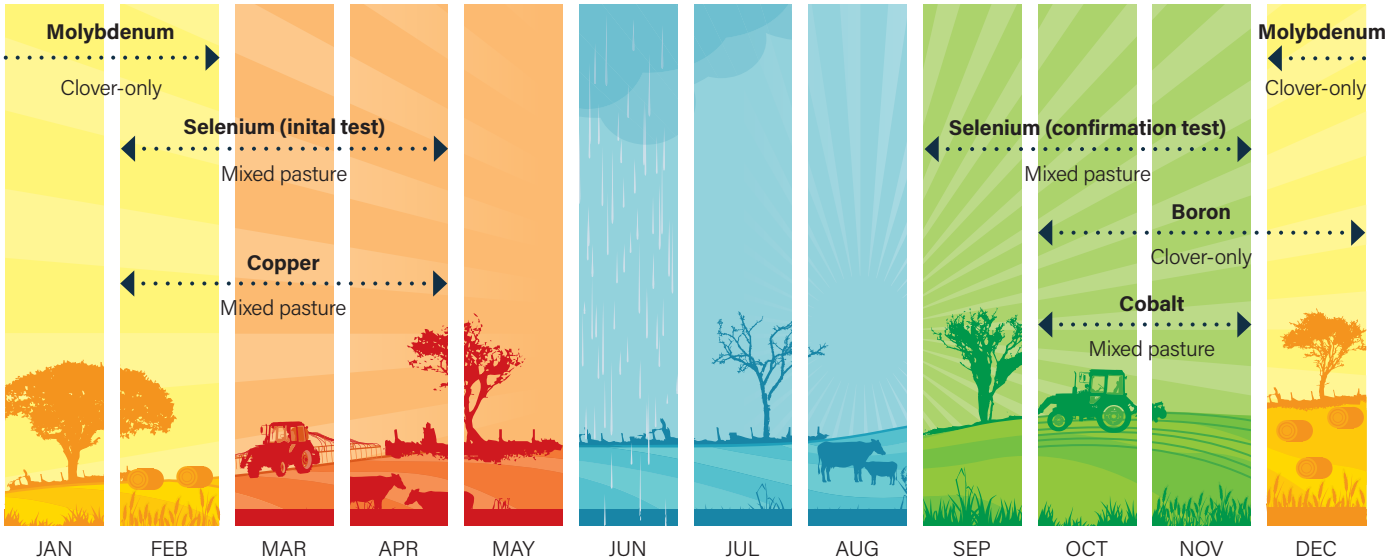


Figure 1 **Timing and test type for different micronutrients**

The mighty micros

Although only required in small amounts, some micronutrients (trace elements) are essential for pasture production.

Micronutrient deficiencies for pasture production, while rare and often associated with specific soil types, can still have an impact if they occur.

A deficiency of the micronutrient molybdenum (Mo), for example, can limit clover and overall pasture production even if macronutrients such as nitrogen, phosphorus, potassium and sulphur are adequately supplied.

The good news is that in a deficient situation such as the above, research has shown the production benefits of applying Mo. In a trial in Southland, Mo application increased pasture yield by 14 per cent and clover production by 25 per cent over 1.5 years[1].

Micronutrients often act as catalysts in chemical reactions, and six are essential for plants (including pasture). Some are also essential for animal health, while others are required exclusively for animal health (see Table 1).

Table 1 **Essential micronutrients for plants and animals**

	Plant	Animal
Boron (B)	✓	-
Cobalt (Co)	-	✓
Copper (Cu)	✓	✓
Iodine (I)	-	✓
Iron (Fe)	✓	✓
Manganese (Mn)	✓	✓
Molybdenum (Mo)*	✓	✓
Zinc (Zn)	✓	✓
Selenium (Se)	-	✓

*Mo is mainly required by plants, deficiency in animals unlikely.

Micronutrients in the soil

Soil reserves of micronutrients for pasture growth are generally adequate, but over time pastoral farming can deplete reserves of micronutrients such as Mo, which may need to be replaced by micronutrients in fertiliser. It is important to note that levels of micronutrients required by pasture are generally lower than those required for animal health. For example, the copper (Cu) required for pasture production is >5ppm, but for cattle is >10ppm.

Soil types and soil forming processes can have a bearing on micronutrient levels. Inadequate levels for animals are more likely to occur on coarse soils such as sandy soils and pumice, podzols and on peat soils. On peat soils, this can be because the soil parent material, organic matter, lacks micronutrients for pasture growth and/or animal needs. Other examples of soils which can be naturally low in micronutrients due to their parent material include South Island sedimentary soils, which are generally low in Mo, particularly if derived from greywacke rock.

Iron (Fe) and manganese (Mn) are the most plentiful micronutrients in soil and rarely need to be applied for pasture growth. In most cases, pasture can also access adequate zinc (Zn), copper (Cu) and boron (B) from the soil (see Table 2).

Pasture production responses to fertiliser B applications have not been shown in New Zealand when clover only herbage levels are >13ppm. However, B is still required for the healthy formation of new plant tissue, effective clover nodulation and nitrogen fixation in legumes. As applications of fertiliser Mo have been shown to lift production on deficient pasture, Mo levels are monitored by clover-only herbage testing, and Mo applied as required.

Soil pH also affects the availability of micronutrients for pasture growth. As soil pH increases, the availability of most micronutrients is reduced, aside from Mo, which becomes more available with increasing pH.

Detecting and overcoming deficiencies

Only herbage testing can reliably assess levels of all micronutrients besides B (see opposite page). While soil testing is helpful for B for brassicas, B for pasture production should be herbage tested.

In pasture, clover is more limited by nutrient deficiencies, so should be used to indicate a potential deficiency. This is further highlighted in the case of B, with clover more efficient at taking up B so having higher B herbage levels than grasses. In this case, when testing for B or other micronutrient levels for pasture growth, a clover-only sample should be tested. If a mixed sample is tested, the lower levels of B in the ryegrass will bring down the overall result and indicate a false deficiency. See Table 2 for micronutrient ranges required for pasture, based on test results from a clover-only sample.

Table 2 **Clover micronutrient requirements**

	Deficient	Marginal (ppm)	Adequate
Mo	< 0.1	-	> 0.1
B	< 13	13-14	> 14
Zn	< 12	12-15	> 15
Mn	< 20	20-24	> 24
Fe	< 45	45-49	> 49
Cu	< 5	5-7	> 7

Source: Use of Trace Elements in New Zealand Pastoral Farming, Fertiliser Association of New Zealand, 2019

Micronutrients can be added to fertiliser to address or prevent deficiencies and applied at low rates compared to macronutrients. It is important to apply micronutrients only when needed (as indicated by herbage testing) and at the right rate, as overapplication is not economically or agronomically efficient and can cause animal health issues.

FOR MORE INFORMATION

The Fertiliser Association booklet *Use of Trace Elements in New Zealand Pastoral Farming* is available at bit.ly/4aZRvwl

[1] Morton JD, Morrison JD 1997. Molybdenum requirements of pasture. Proceedings of the Fertiliser Research Conference

The significance of S

Sulphur (S) is vital for farming, but often lacking in New Zealand soils, especially during spring when most needed.

"Despite being essential and straightforward to apply with other nutrients, S can be easily overlooked," says Ballance Science Extension Officer Grant Bickley.

Sulphur has several key functions, including its role in chlorophyll production (the compound that underpins photosynthesis) and its involvement in the formation of proteins. Clover in particular needs S; the *Rhizobia* bacteria in clover root nodules require it for nitrogen (N) fixation.

If soil is deficient in S, clover growth will suffer in both vigour and abundance, and pasture will have small leaves, shortened, hard stems and young leaves will be pale green to yellow.

"Insufficient S can also limit pasture response to N, especially if S levels are low after a wet winter," says Grant.

Fertiliser forms of S

Two forms of S are commonly found in fertilisers: sulphate S and elemental S.

"Sulphate S, the form taken up by plants, is vulnerable to loss by leaching, especially on soils with a low anion storage capacity (ASC) and high annual rainfall (>1500 mm).

"Elemental S isn't vulnerable to loss by leaching and can't be taken up by plants; it must first be converted to sulphate S form by naturally occurring soil bacteria. These bacteria become increasingly active as soil temperatures rise during spring, gradually converting elemental S into sulphate S."

Selecting S fertiliser

"When selecting an appropriate S product to apply, it's important to consider the timing and frequency of applications required. This mainly depends on the soil's susceptibility to S leaching, mostly due to wet conditions and increased soil drainage over the winter period," says Grant.

As a general guideline, sulphate S should be used when applications are made in spring (except on soils with poor S retention that experience high drainage, where a mix of both sulphate S and elemental S should be used).

Elemental S is preferred for applications made in autumn, because it remains in the soil and is resistant to leaching over the winter period.

"This ensures it's available to meet the S requirements of spring pastures, while also providing a slow release of S over the growing season," explains Grant.

Applying N fertiliser combined with S can increase production compared to using N alone, as the S ensures the N response is not limited. This can be done using products such as PhaSedN Quick Start or SustaiN Ammo during late winter to early spring, or PhaSedN during autumn (see Table 1).

When phosphorus (P) is required to maintain levels within optimum, products from the Sulphurgain range (applied during the autumn period) are effective at providing soluble P along with sulphate S for immediate plant uptake, and elemental S to support long term pasture requirements (see Table 1).

"With so many options available, S can easily and effectively be applied along with other nutrients in spring or autumn, to suit your specific requirements," says Grant.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist.

Table 1 **Total S, sulphate S and elemental S content of some common fertilisers**

		Proportion of total S as:	
	Total S (%)	sulphate S (%)	elemental S (%)
SustaiN Ammo 30N	14.0	100	-
SustaiN Ammo 36N	9.2	100	-
PhaSedN	28.5	-	100
PhaSedN Quick Start	17.1	32	68
Super	11.0	100	-
Serpentine Super	8.5	100	-
SurePhos SI	7.8	100	-
Sulphurgain 15S	15.2	70	30
Sulphurgain 20S	20.4	48	52
Suplhurgain 30S	29.8	29	71

Save time on reporting

"It's great to be able to take away pain points for farmers..."

Data sharing is saving farmers time, and can also improve fertiliser recommendations.

Farmers opting to have their data shared between Ballance and their dairy processor are saving time on compliance reporting.

By mid-July this year, over 1500 farmers had signed up to the data sharing, making it easier to complete their nitrogen use reports due at the end of July.

"It was great to get lots of unprompted compliments on this initiative at the National Fieldays, with one farmer even saying it'll be game changing for them," says Ballance General Manager Customer, Jason Minkhorst.

Ballance customers who supply either Fonterra or Open Country can choose to have their Ballance nitrogen fertiliser data shared with their respective dairy processor, so they don't have to enter the same information into multiple systems and can spend less time on end-of-year Farm Dairy Record reporting. Data sharing also saves farmers time spent on their shed inspection through reduced fertiliser record auditing.

After opting-in to data sharing, Ballance sends Fonterra or Open Country information about the customer's Ballance product use on farm during the season. This includes the amount purchased per product, months of application, and maximum application rate (if known from using the MyBallance Nitrogen Limit Management Feature and associated proof of application data).

Fonterra suppliers can also receive better fertiliser recommendations by having their Fonterra data shared with Ballance. The data shared with Ballance helps to inform the nutrient advice they provide. By opting-in, farmers have their Farm Dairy Record supplementary feed usage and milk production and quality records shared between the two co-operatives. This gives their Ballance Nutrient Specialist greater access to farm management information, so the farmer receives better advice and recommendations, tailored to their farm.

Ballance is also further developing its data sharing with Open Country, so that next year Open Country suppliers will have access to two-way data sharing for more enriched data.

"It's great to be able to take away pain points for farmers, and this is part of our commitment to save them time and save them money," says Jason.

Opt-in to data sharing for 2024/25

Fonterra suppliers

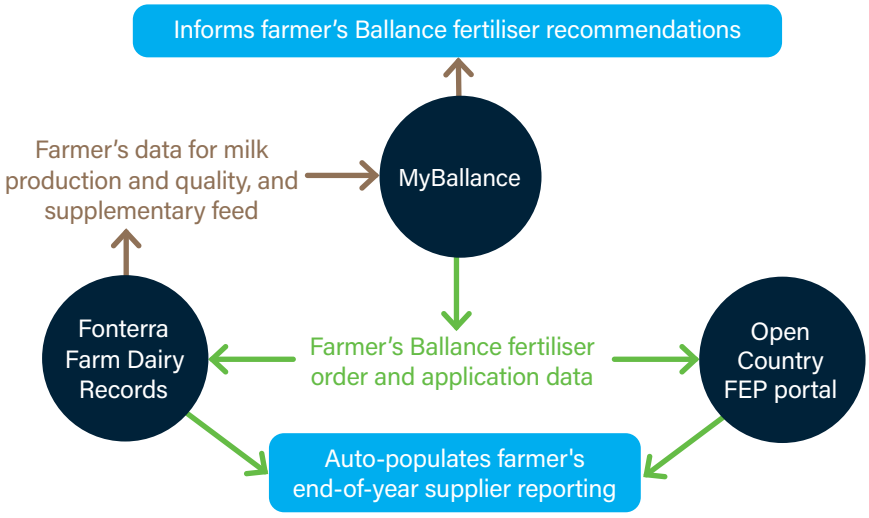
1. Sign in to your Farm Source account.
2. Navigate to the Farm Dairy Records Overview page via the top left-hand menu > My Farm Source > Farm Records and Insights > Farm Dairy Records.
3. To set up a connection to retrieve your Ballance fertiliser records, click Connect in the MyBallance connection box.

Open Country suppliers

Complete the form at **woobox.com/bcaeuy**

FOR MORE INFORMATION

Get in touch with your local Ballance Nutrient Specialist or contact us on 0800 222 090.



How data sharing between Ballance and Fonterra or Open Country works

Maize silage fertiliser

Maize is widely grown as a silage crop, mainly as a supplementary feed for dairy cows.

To ensure a reasonable economic return on maize silage, cost-effective application of nutrients is important. Maize silage fertiliser requirements are largely determined by expected crop yield and the levels of nutrients already in the soil.

Soil testing

Ideally, soil test (to 15 cm) 6-12 months in advance of drilling, to allow sufficient time for lime application to take effect if soil pH needs adjusting. Soil testing early also allows time to correct the nutrient levels. See Table 1 for target soil test levels for growing a maize crop.

To determine nitrogen (N) fertiliser requirements, take a Deep N soil sample to a depth of 30 cm prior to drilling. To find out how much N the soil can provide, testing should include both a Mineral N test (which measures the amount of N immediately available to the crop) and the new Potentially Mineralisable N test (which measures mineralisable N released from organic matter during the growing season).

Table 1 **Target soil test results for growing a maize crop**

Test	Target levels
pH	5.6-6.2
Phosphorus (Olsen P)	>15
Potassium (QTK)	>4
Sulphur (sulphate S)	6-10
Magnesium (QTMg)	8-10

If testing after drilling, make sure to sample between the rows, away from any N fertiliser applied with the drill.

Base and starter fertiliser

Prior to drilling, broadcast any remaining base fertiliser required that cannot be drilled with the seed

Regardless of base fertility, it's important to apply most of the phosphorus through the planter (with the remainder applied in the base fertiliser) with some N to encourage healthy early seedling development.

Maize silage uses large volumes of N (see Table 2). A maize silage crop needs around 13 kg N per tonne of DM. Applications should be split between starter fertiliser and side dressing/s. Applying all the crop's N requirement up front poses a potential environmental risk of loss via leaching.

Table 2 **Typical nutrient uptake rates for a maize crop**

Nutrient	Amount required per tonne of maize silage (kg/T yield)
Nitrogen	12.8
Phosphorus	2.6
Potassium	12.0
Sulphur	1.4
Magnesium	1.7

Data from National Research Council 2001

Side dressing

Crops such as maize can take up potassium (K) without showing a growth response (known as 'luxury uptake'). For this reason, a base fertiliser application of K or side dressing with N should only be applied if existing soil reserves are extremely low (Quick Test <4).

The side dressing of N should also be applied once plants have six fully emerged leaves (growth stage V6), using SustaiN to minimise volatilization losses (losses of N as ammonia gas).

Micronutrients

Lastly, micronutrient (trace element) deficiencies can restrict crop growth and maize can be prone to zinc, manganese and occasionally boron deficiencies, especially if pH>6.5. For this reason, monitoring the crop and conducting herbage testing to check for micronutrient deficiencies are recommended.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist.

Growing summer crops

Summer forage crops increase feed supply, taking the strain off pastures

When pasture growth rates decline over summer, a forage crop can increase feed supply to fill a deficit, and prevent overgrazing of stressed pastures.

As always, it's best to formulate a summer management plan early, which includes balancing feed supply with demand. Before feed becomes limited, demand could be reduced by culling early or selling stores. Options for increasing supply may include nitrogen (N) fertiliser, supplements and growing summer crops.

Many useful roles

Summer forage crops are known for their potential to produce high yields of high quality forage that can be fed in situ from early summer. But they can also play other useful roles.

During pasture renewal, summer forage crops can serve as break crop to reduce weeds, pests and diseases, and create better soil conditions and cleaner seed beds for establishing new pastures. Summer crops can also be a feed substitute to avoid pasture-related health problems such as facial eczema and ryegrass staggers.

Finding the right one

Summer crops such as Raphno, forage rape, turnips, leafy turnips (Pasja or Hunter), chicory and plantain provide added energy and protein during summer. Most are sown from late September to early November, depending on when the feed is required.

It's important to match your forage selection to your feed requirement (see Table 1).

Paddock selection and preparation

Summer forage crops are usually planted as part of a pasture renewal cycle, so often the poorest performing paddocks are chosen. Unless both the physical state and nutrient status are addressed before crops are sown, yields are likely to be low.

Soil testing early, ideally 12 months in advance or at least 6 months before sowing, allows time to correct the pH status and nutrient levels if needed.

Phosphate placed close to the seed (e.g. 100-150 kg/ha DAP or Cropzeal Boron Boost) will enhance seedling establishment.

If the soil potassium (K) test is low (Quick Test <5), an increasing amount of K (50-100 kg K/ha) can be applied to ensure a yield response.

The N content required for each species varies, from 2.3 per cent for forage rape and leafy turnips and up to 3.0 per cent for Raphno.

The N fertiliser required for the crop can be calculated as follows:

N fertiliser required for the crop = Potential crop N uptake (yield x crop N content) – N in the soil

Applying N early, especially for fast establishing crops, helps boost leaf growth so the plant has more opportunity to capture sunlight and outcompete weeds, resulting in improved yield. Nitrogen applied too late, close to grazing, is likely to result in limited extra yield and could result in high nitrate levels.

Managing N on summer forage crops

A 3 year Sustainable Food and Fibre Futures project aims to determine N management indicators (N use efficiency, N output and N surplus) for summer-fed forage brassica crops. Field trials are being run in Hawke's Bay, Canterbury and North Otago, the key regions for dryland summer-fed forage brassica systems.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist.

Table 1 **Features of summer forage crops**

Raphno	• High yield potential over 3-4 grazings • As early as 50 days to grazing • Tolerant to drought and clubroot
Forage rape	• 70-110 days to grazing (depending on variety) • Flexible grazing (single or multiple grazings) • Very good quality, bulk feed over the summer dry period • Better tolerance to drought and low fertility environments than leafy turnip • Has a maturity requirement
Summer turnips	• High yield potential (8-14 T DM/ha) • 60-120 days to grazing (depending on variety) • Single grazing • Highly digestible bulb
Kale	• Moderate yield potential for summer grazing • No maturity requirements • Single graze in most cases • Very flexible in terms of grazing time (e.g can be grazed early or left until winter)
Leafy turnips	• High quality leaf • 50-70 days to grazing • Regrowth very high due to low growing point • Shallow rooted so susceptible to drought and low fertility
Chicory	• Multiple grazings • Deep tap roots help growth during dry periods • Lasts 1-2 years, with performance enhanced by addition of legume (e.g red and white clover)
Plantain	• Establishes rapidly • Rapid response to rainfall following dry periods • Multiple grazings • Highly tolerant to summer heat • Lasts 2-3 years, with performance enhanced by addition of legume (e.g red and white clover)

Be assured by Fertmark

Buying a product from Ballance with the Fertmark tick means what's on the label is actually in the bag, so you know you're getting what you've paid for.

Products with the Fertmark tick are independently audited to ensure the labelling of ingredients is accurate in terms of claimed nutrient content.

The Fertmark scheme is run by the Fertiliser Quality Council, but the auditing is undertaken by QCONZ, which audits a range of quality assurance programmes in the primary sector.

Fertmark covers both single nutrient products as well as compound fertilisers, where multiple nutrients are combined into granules. For either type of fertiliser, the nutrient content, as declared by the manufacturer, is audited.

As a farmer-owned co-operative, Ballance wants you to make informed decisions when choosing products for your farm. This is why many of our core products are Fertmark approved (as indicated by the Fertmark tick next to them on our product price list).

When you are buying fertiliser products, we encourage you to look for independent New Zealand testing such as Fertmark. This ensures the products are an acceptable standard for your farm, and match what you think you're buying.

If a supplier claims a product has a certain percentage of a nutrient, they should have test results to support this. If you have any doubt about the quality of a product, you should seek independent testing.

In addition to the nutrient content of fertilisers, the Fertiliser Quality Council is working to introduce standards for the physical properties of fertiliser to the Fertmark certification scheme, to support more precise nutrient distribution.

Quality spreading with Spreadmark

To ensure quality fertiliser is spread to optimise nutrient use and avoid environmental side effects, the Fertiliser Quality Council also runs Spreadmark, a sister scheme to Fertmark. The Spreadmark tick means spreader operators are trained to spread accurately, and use certified spreading machinery to apply fertiliser at an even rate and distribution pattern, exactly where you want it.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist. For more on Fertmark and Spreadmark visit fertqual.co.nz.

Our Fertmark approved products

- Cropzeal Boron Boost
- DAP
- Granular Calmag
- Muriate of Potash
- Nrich Liquid Urea
- Nrich SOA
- Nrich Urea
- PhaSedN
- Pure RPR
- Serpentine Super
- Sulphate of Potash
- Sulphurgain 30S
- Sulphurgain 90S
- Super
- SurePhos (NI)
- SurePhos (SI)
- SustaiN
- Triple Super
- Unika Plus
- YaraBela CAN
- YaraLiva Nitrabor
- YaraMila 12-10-10
- YaraMila 8-11-20
- YaraMila Actyva S
- YaraMila Complex
- YaraMila Grower NZ

Mythbusters

This regular column sheds light on some common misconceptions.

Myth

Superphosphate acidifies soil and kills worms.

Truth

Research has shown that superphosphate does not acidify soil, and that it can benefit earthworm populations.

Long term trials conducted on Winchmore research farm concluded that superphosphate itself does not lead to any notable increase in soil acidity. These 70-year-long experiments found any increase in soil acidity was due to the effects of improved soil fertility, not superphosphate. Plant growth arising from improved fertility naturally and gradually acidifies soil. In addition, better pastures can carry more stock which can result in more nitrate leaching, which increases soil acidity.

In a long term irrigation trial at Winchmore, superphosphate was shown to actually have long term beneficial effects on earthworm populations through associated increases in organic matter (see Figure 1).

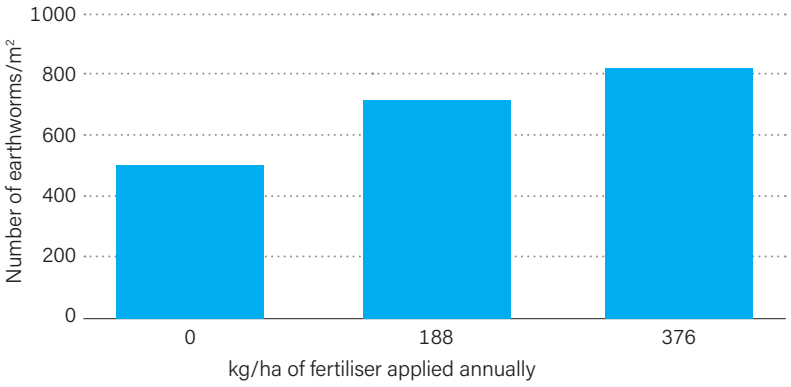


Figure 1 **Impact on earthworm populations after 40 years of annual superphosphate fertiliser applications to an irrigated pasture in Canterbury[1]**

Myth

Using gibberellic acid increases pasture yield.

Truth

Gibberellic acid, a plant growth hormone, is widely promoted as an enhancer of pasture growth, including when used with nitrogen (N) fertiliser. However extensive trials have shown gibberellic acid – with or without N – does not increase overall pasture yield and simply brings feed supply forward[2,3,4].

Several years of local and overseas trials assessing the effectiveness of gibberellic acid alone and with N have shown increased pasture yield in the short term, but at the expense of reduced yield in subsequent weeks.

In these trials, plots treated with gibberellic acid alone had a strong pasture response and significantly higher yields at first harvest. But in subsequent harvests, the yield advantage of the gibberellic acid treatment declined, and after several cuts the difference between plots declined, resulting in the gibberellic acid treated plots not being significantly different to the control.

Using gibberellic acid (with or without N) to bring feed supply forward may still be of value when there is a feed deficit, provided the deficit is not merely shifted. Rather than producing a large amount of additional feed, gibberellic acid has a greater role in shifting the time of the feed availability.

FOR MORE INFORMATION

Contact your Ballance Nutrient Specialist.

[1] Fraser PM, Piercy JE 1996. Effects of summer irrigation on the seasonal activity, population size, composition and biomass of lumbricid earthworms in a long-term irrigation trial at Winchmore, New Zealand. Australian New Zealand National Soils Conference, University of Melbourne, 1-4 July 1996

[2] Higgins S, 2016. Comparison of the relative agronomic performance of several different plant growth promoting formulations in ryegrass-based pasture, under non-moisture limited late winter/early spring conditions, Agri-Food and Biosciences Institute, Northern Ireland

[3] Higgins S, Watson C 2014. Comparison of relative agronomic performance of several different plant growth promoting formulations in ryegrass-based pasture, under non-moisture limited late winter/early spring conditions, Agri-Food and Biosciences Institute, Northern Ireland

[4] Ledgard, SF 2016. Review of research on effects of application of gibberellic acid alone or in combination with fertiliser nitrogen on pastures, AgResearch report for Ballance Agri-Nutrients

Clippings

Freshwater farm plan improvements

In April, the Government announced plans to make the freshwater farm plan system more cost-effective and practical.

"Although freshwater farm plans look set to change, all parties in Government have clearly stated their support for farm environment plans more broadly," says Ballance National Farm Sustainability Manager Angus Dowson.

"So rules aside, it's still a good idea to have a farm environment plan, and we'd encourage anyone who's not already done so to get started on their journey."

Proposed changes to the farm plan system include more ability for farmers to find the right solutions for their farm and catchment, and matching the time and cost of farm planning to the level of risk.

Work is also underway to integrate existing farm environment or industry assurance plans into the freshwater farm plan system, as well as the certification and auditing requirements of the system.

Regardless of changes to national rules, farmers in many parts of New Zealand will still need to have a farm environment plan under their region's rules.

"In the end, we're already seeing consumers demanding environmental sustainability, often to an extent that is outpacing regulatory settings. So it's in a farmer's best interest to look into what support is available, and to talk to our Farm Sustainability team about their options and what they need to be prioritising on farm."

FOR MORE INFORMATION

See page 7 or contact the team on farm.sustainability@ballance.co.nz or 0800 222 090.

Resource Management Act changes could help farmers

Rules affecting farmers look set to change under proposed changes to the Resource Management Act (RMA).

The Government announced the proposed RMA changes in April which, if passed, could become law by the end of this year.

One of the proposed changes – removal of the low slope map from stock exclusion regulations – comes as good news for some drystock farmers who, under the existing rules, are looking at fencing large stretches of waterways by July 2025. If the proposal goes ahead, stock exclusion rules and waterway crossing rules would no longer apply to non-intensively grazed beef cattle and deer (although some details are yet to be finalised).

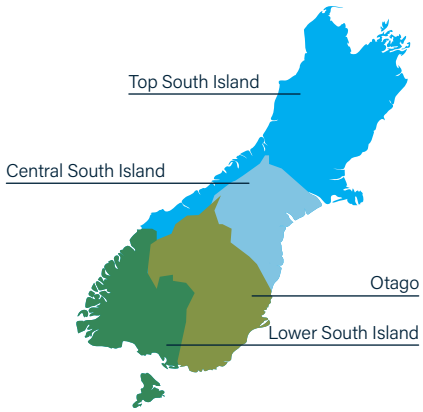
Also set to be removed in time for the 2025 season are regulations requiring consent for intensive winter grazing that falls outside the permitted activity standards (based on size, slope, stock exclusion etc.). This may instead be incorporated into freshwater farm plans.

The proposed changes could also suspend the requirement for councils to identify new Significant Natural Areas (SNAs) for 3 years while a review of how they operate is carried out.

Until the proposed changes are passed, farmers are still required to comply with existing regulations. This includes regional council rules, which may differ from those at a national level.

Get to know your local nutrient specialist

Our team is always here to help you with expert local advice and support. Ask us to connect you.



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027 807 6760

Rachael Hoogenboom
Regional Sales Manager
Otago
027 202 5872

Kieran Anderson
Regional Sales Manager
Lower South Island
021 227 3558

Amelia Marsden
Nutrient Specialist
Buller / Tasman
027 742 8966

Martin Burrows
Nutrient Specialist
Blenheim / Kaikoura
027 839 8731

Peter McCorkindale
Nutrient Specialist
North Canterbury
027 540 4566

Barbera Forster
Nutrient Specialist
Canterbury Central
027 839 0282

Rod Harris
Nutrient Specialist
West Coast
027 432 8723

Rowan Muller
Key Accounts
Nutrient Specialist
North Canterbury
021 300 613

Caitlin Thistoll
Key Accounts
Nutrient Specialist
Canterbury Central
027 443 8303

Geraldine Cook
Nutrient Specialist
Ashburton
027 499 7617

Alice Perry
Nutrient Specialist
Timaru / Oamaru
027 705 6600

Grace Reith
Key Accounts
Nutrient Specialist
North Ashburton
027 464 2972

Maddy Horne
Key Accounts
Nutrient Specialist
West Ashburton
027 677 4499

Gretchen Forbes
Key Accounts
Nutrient Specialist
South Ashburton
027 839 3280

Alison Murney
Key Accounts
Nutrient Specialist
Timaru
027 607 1506

Ali Ching
Key Accounts
Nutrient Specialist
Oamaru
027 285 0670

Nikita Beck
Key Accounts
Horticulture &
Arable Specialist
Canterbury
027 392 4458

Paul Turner
Key/Core
Nutrient Specialist
Central Otago
027 439 5086

Charlotte Beaty
Key/Core
Nutrient Specialist
Eastern Otago
027 433 4667

McKenzie Frear
Nutrient Specialist
Gore / Roxburgh
027 464 2976

Rebecca Bell
Nutrient Specialist
East Southland / Balclutha
027 433 2533

Lucy McLean
Key Accounts
Nutrient Specialist
East Southland / Balclutha
021 857 482

Morgan Nimmo
Key/Core
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Leonie Falconer
Business Development
Specialist
027 635 0724

Jess Mackay
Nutrient Specialist
North East Southland
027 294 1197

Hayley Jackson
Nutrient Specialist
Southern Southland
027 494 8895

Steven Maxwell
Nutrient Specialist
Western Southland
027 248 6054

Grant Hardie
Key Accounts
Nutrient Specialist
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027 250 4690

Jarrod Lindsay
Key Accounts
Nutrient Specialist
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027 433 8420

Camryn Scott
Key Accounts
Nutrient Specialist
North East Southland
021 303 644

Sophie McLean
Key Accounts
Nutrient Specialist
Central West Southland
027 280 3818

Olivia Church
Key Accounts
Nutrient Specialist
Central East Southland
027 839 8224

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027 434 5972

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