

# DIG DEEP

Industry Insights from Incitec Pivot Fertilisers | Autumn 2025 | Edition 04



**\$4M Eyre Peninsula investment**

**Trials back Green Urea NV**

**Get pastures ready for winter**

**... and more**



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Cover Image: IPF Technical Agronomist, Lee Menhenett, discusses results from IPF's volatilisation trials across southern Australia on pages 4-5 of this edition.

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L-R: Andrew Henderson, Principal at Agsecure; David Jochinke, President, National Farmers' Federation; Scott Hansen, CEO of Australian Pesticides and Veterinary Medicines Authority; Scott Bowman, IPF President; and journalist, Kate Banville, at the ABARES annual outlook conference in Canberra.



Scott Bowman

## PRESIDENT'S NOTE

# Welcome to the fourth edition of *Dig Deep*

### I'm pleased to share this year's first edition of *Dig Deep*.

Our front cover features one of Incitec Pivot Fertilisers' (IPF) Technical Agronomists, Lee Menhenett. Lee and the broader team work hard every day to help farmers be more productive, and I'm particularly excited to showcase the results of the Research and Development (R&D) and Agronomy teams in this edition.

We have released the results from one of largest multi-site trials facilitated to date, demonstrating that topdressing with Green Urea NV can improve productivity and return on investment.

With Australian crop production expected to increase to nearly \$50 billion in 2024-25, productivity of Australian agriculture remains critical on a global scale. Australian farmers are key to meeting the world's growing food demand, and ensuring they have access to the best inputs, infrastructure, and innovations is vital to keeping them ahead.

At IPF, we're continuing to invest in the future. I'm proud of our current suite of investments, whether it's in research, our sites, or our people, IPF is here to help Australian farmers stay at the forefront of productivity.

Our recent \$2.5 million investment in our Whitton EASY Liquids facility in the Murrumbidgee Irrigation Area of New South Wales reinforces this. The upgrade boosts storage capacity by 30%, improves efficiency, and reduces handling, ensuring growers across a 300-kilometre radius – from broadacre to permanent crop operations – have reliable, year-round access to essential inputs.

Whitton is just one part of the bigger picture. We continue to prioritise capital projects that drive productivity and sustainability. We have invested \$4 million at our site in Port Lincoln, South Australia, and invested in a new coating facility on Kooragang Island, NSW. We're embedding a culture of continuous improvement across our operations.

By investing in our business, people, and innovation, we're delivering better

productivity and sustainability outcomes for farmers and industry.

I recently had the opportunity to speak at the ABARES Outlook Conference in Canberra, where we discussed the importance of resilient supply chains and essential agricultural inputs – from fertilisers to fuels and farm chemicals. By partnering with Perdaman on Australia's largest ever downstream gas investment, we're reinforcing supply reliability, giving farmers greater confidence in their access to critical inputs so they can focus on what they do best – producing the food and fibre that sustain Australia and the world. I'm pleased to report that this project is on track and we are still anticipating our offtake of two million tonnes per annum to commence in the second half of 2027.

I hope you enjoy this edition of *Dig Deep* as much as we've enjoyed bringing it to you.

Regards,  
Scott Bowman

**President, Incitec Pivot Fertilisers**

## GLOBAL TRADING OVERVIEW

# Q2 2025 in review

In recent months, global prices for Ammonium Phosphate (AP) have stabilised while nitrogen (N) prices remain volatile.

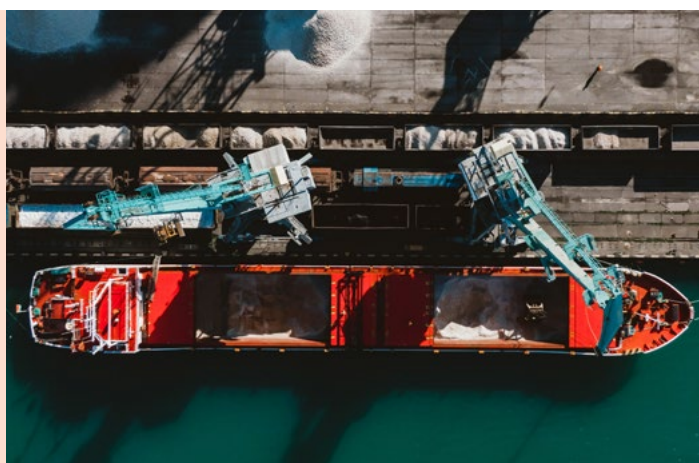
After a strong price rally in the second half of 2024, global Ammonium Phosphate (AP) prices have largely stabilised over the past few months. This price resilience has been underpinned by a robust demand in key markets and persistent supply-side constraints, particularly in China, where AP and urea exports remain suspended.

Nitrogen markets have also maintained firm pricing trends, driven by tight supply and sustained global demand.

Despite periods of volatility, the overarching fundamentals indicate continued strength, as geopolitical and economic pressures shape the broader trading environment.

### Ammonium Phosphate (AP)

- The price momentum established in mid-2024 has carried into early 2025, supported by solid demand and constrained supply. China's ongoing export suspension has limited global availability, ensuring that prices remain firm.
- India and Pakistan have maintained a strong demand profile, with low inventory levels and the requirement to import. Simultaneously there is emergent demand in other important markets such as the USA and Brazil.



### Nitrogen (N)

- Urea prices have been volatile and after a very strong rally in February have recently corrected, however are still strong against historical levels.
- China's ongoing export suspension is a key supply side constraint and along with India's recent purchase tender for 1.5 million MTs will serve to support prices.
- Ongoing conflict in the Middle East and other regions continues to drive volatility in global urea and energy markets.

## Looking ahead

### ▶ Continued AP price support:

AP prices are expected to remain firm over the next few months, supported by strong demand in key markets and ongoing supply constraints, particularly in China.

### ▶ Macroeconomic and political risks:

Global uncertainties, including Middle East conflicts, the US political transition, the Ukraine war and Chinese economic recovery and energy costs, are expected to continue to influence the market.

### ▶ Exchange rate volatility:

The Australian dollar (AUD) is likely to remain volatile as global markets grapple with growth and inflation concerns, and interest rate policies remain uncertain.

### ▶ Government policies & trade

**intervention:** Government interventions in key markets will continue to impact the market. Notable examples include export controls in China, the Nutrient Based Subsidy in India,

Countervailing Duties (CVDs) in the US and potential US tariffs.

▶ **Crop prices:** Key crop prices are fluctuating, impacting growers' terms-of-trade, however they are broadly supportive of current fertiliser values.

▶ **In response to all the above factors,** price risk is likely to remain dynamic and deliver continued volatility, however key indicators suggest a period of continued market firmness.

## CAPITAL WORKS

# Port Lincoln PDC expansion boosts supply

**Incitec Pivot Fertilisers' (IPF) \$4 million investment in a new storage shed at the Port Lincoln Primary Distribution Centre (PDC) is on track for completion in March, ahead of Eyre Peninsula growers starting their winter planting programs.**

The investment will increase on-site storage by 30% and improve efficiencies and productivity throughout the supply chain.

It will also ensure more product can be unloaded directly from ships into the shed, eliminating the need to transfer fertiliser from IPF's Port Adelaide site by road and removing more heavy vehicles off South Australian roads.

## Security of supply

Next year marks 100 years that IPF has had a footprint at the Port Lincoln site, and this latest investment further shores up security of supply to support future growth.

In 1926, a Single Superphosphate (SSP) manufacturing plant with 25,000 tonne output was first commissioned on the site. Output significantly increased to 80,000 tonnes in 1950, as a result of the Solider Settlement Scheme and soldiers taking up land in the Eyre Peninsula.

Over the past 10 years, IPF has invested \$14.5 million in the Port Lincoln PDC, which has more than



The new storage shed at the Port Lincoln Primary Distribution Centre (PDC) under construction.

doubled its annual sales volume in the same timeframe.

IPF Port Lincoln Site Manager, Nathan Bryant, said the new storage will enable more flexibility and optimise dispatch capacity to meet customer delivery expectations.

"We have been working hard to deliver for our customers and this new shed means we will be able to deliver better customer outcomes," Nathan said.

"The new shed shows investment and commitment to the site, the team, and our customers.

"IPF has demonstrated over the years that it will support and invest where it is needed most.

"I am very proud of our journey and our transformation as a PDC, coming from an aged facility to a progressive distribution centre that is situated perfectly to meet our growers' needs today and for years to come. The journey has been long, and is continual, and I thank the team and the business for their support and commitment over the years.

"I believe it shows our customers and growers that we are committed and that we listen and have positioned ourselves to meet their expectations as a supplier of their fertilisers needs.

"The Port Lincoln site has undergone significant changes, having transitioned from a manufacturing facility to an import, storage and distribution centre.

"It has grown exponentially, and the new storage shed is just the latest addition to the site. Importantly, IPF intends to continue to invest in the site."

In 2018, IPF installed a new Ranco five-hopper blending plant, improving load-out times for blends from 70 tonnes/hour to 160 tonnes/hour to enhance capacity and reduce turnaround times for customers.

The upgrade also equipped the site with a new generation applicator for applying trace elements, fungicides, and other liquid coatings to a range of fertilisers.

Today, Port Lincoln PDC supplies MAP, DAP, Granulock Z, Granulock SS, Gran Am (SoA-G), Granular Urea, and Green Urea.

Further demonstrating its support for the region, IPF contracted South Australian construction and engineering company, Ahrens, to design and build the new Port Lincoln storage shed.

IPF will host an open day for customers in May to showcase its capabilities.

## PORT LINCOLN SITE HISTORY

**1926**

Site commenced with commissioning of SSP manufacturing plant with 25k/t output

**1950**

Output increased to 80k/t as a result of Solider Settlement Scheme and soldiers taking up land in the Eyre Peninsula

**1970**

Site reached output of 120k/t SSP with workforce of 150 people

**1990**

SSP manufacturing ceased; product supplied from Portland and Geelong

**2008**

Remodelling and upgrades of site to accommodate market growth

**2023**

20 years Recordable Injury Free

**2025**

New storage shed upgrade of numerous facilities to increase productivity and support farmers

## RESEARCH &amp; DEVELOPMENT

# IPF trials show costs of N loss

**Recent on-farm research conducted by Incitec Pivot Fertilisers (IPF) across southern Australia has demonstrated topdressing with Green Urea NV significantly reduces ammonia volatilisation losses in winter crops and pastures.**

The research trials were undertaken in 2024 at 11 winter cropping sites throughout South Australia, Victoria, and southern NSW, including three pasture sites in Victoria and one pasture site in Tasmania.

The aim was to determine ammonia gas ( $\text{NH}_3$ ) volatilisation losses.

The trials are one of the many R&D projects IPF is running to help drive efficiency, sustainability, and innovation in the fertiliser industry, and enhance farmer productivity.

## What were the findings?

IPF Technical Agronomist, Lee Menhenett, said the trials enabled IPF to collect localised data across a range of soil types and geographical areas, over multiple topdress applications.

The cropping and pasture trials all compared the performance of Green Urea NV to urea.

**“In these trials, Green Urea NV consistently showed its worth in reducing losses.”**

Across cropping and pasture trial sites, ammonia volatilisation and nitrogen (N) losses were reduced with the use of Green Urea NV.

While the effectiveness of Green Urea NV was the primary focus of the trials, other common N products such as Gran Am and Easy N were also trialled.

“We know once a urea granule hits the ground in the presence of moisture, the hydrolysis process starts, causing ammonia production and the potential of that N to leave the farm. How big the N loss is depends on a range of factors associated with soil and environmental conditions,” Lee said.

“In these trials, Green Urea NV consistently showed its worth in reducing losses.

“Green Urea doesn’t reduce losses to zero, however our measurements showed Green Urea NV reduced losses across all sites by an average of 76.5% for the June application, 81.6% for the July application and 76.3% for the August application.

“Results show a higher percentage of losses occurred in the seven days post-treatment applications compared to the second week.

“Our collated results and data are being presented as how many kilograms of ammonia has been lost off each site.”

## How were the trials conducted?

IPF’s Green Urea NV is a urease inhibitor or enhanced efficiency fertiliser (EEF). It is a spray-on coating which slows activity of a specific biological process involved in the conversion of urea to ammonium. This gives time for urea to be incorporated by rain, irrigation, or cultivation, resulting in less losses and more retention of N in the system for a crop and pasture production.

Winter cropping sites were located at Ungarra, Arthurton, Hopetoun, Lake Bolac, Derby, Howlong, Longerenong, Naracoorte, Murchison East, and Kanagulk. The Naracoorte site also included eNpower and Dual inhibitor treatments.

Winter crops including wheat, barley and canola received three topdresses in mid-June, mid-July and mid-August with N applied at a rate of 46kgN/ha.

The pasture sites at Lardner, Coleraine, and Tongala received two topdressings in early August and September/October with N applied at a rate of 46kgN/ha. The Tasmanian site was located at Hagley and top dressed in January.

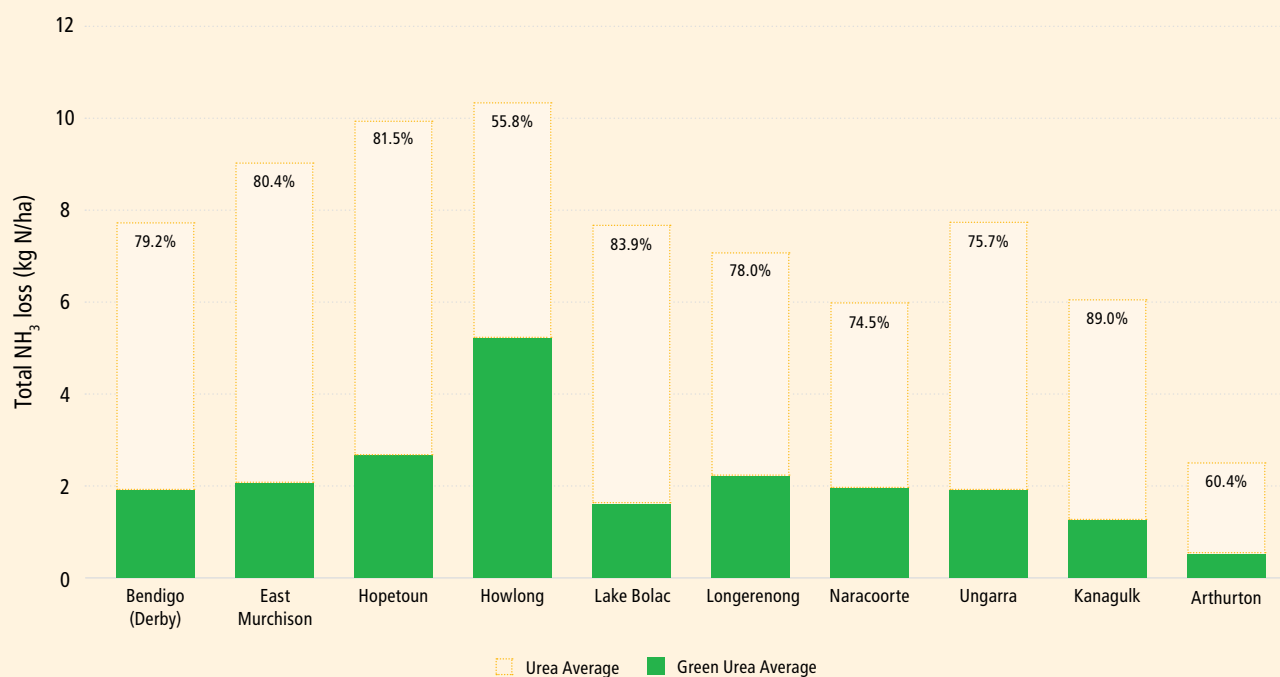
At each site, volatilisation losses/emissions were measured using a closed system designed by IPF R&D Agronomist, Dr Robert Impraim.

The system consisted of a PVC chamber, a secure lid, and a catchment for a treated sponge to absorb emitted  $\text{NH}_3$ .

To set up the system, PVC pipes were inserted 5 cm deep into the soil over the top-dressed area. Inside each chamber, an acid-impregnated sponge was suspended to trap  $\text{NH}_3$ , and a lid placed over the pipe, essentially excluding rainfall for the two-week trial period.



Reduction in  $\text{NH}_3$  losses with use of Green Urea NV average across all urea topdresses during trial (2-3 per site).  
Average losses



Seven days after the initial topdressing, the sponges were removed and replaced with fresh ones. The second set was collected after another seven days, completing a 14-day measurement period from the first topdressing.

#### Costs of N loss

Lee said there is a twofold way to look at the costs of not retaining N in the system.

"The trials have definitely demonstrated the loss of N from the system and the lost yield opportunity are both real and significant from an economic perspective and something growers need to consider," Lee said.

"You can grow 20kg of grain for every kilogram of N available, so every kilogram of N loss is lost yield potential."

Lee said the results are a timely reminder to growers that urea is volatile.

"There are a range of factors that can cause growers to apply fertiliser at suboptimal times or under unsuitable conditions, increasing the risk of N losses," Lee said.

"Growers need to have Green Urea NV product on hand or close to hand so they can use it when the right situation arises.

"Our growers' programs have become bigger, they're cropping more and using more N, so N fertiliser programs are obviously getting bigger, and they've got to get a lot more out in a shorter amount of time.

"Of the numerous environmental and soil factors that drive volatilisation losses, one of the primary factors is the pH of the urea granule. The urea granule has a pH of 9.5 when it lands on the soil, an area of localised high pH can form ammonia N rather than the less volatile ammonium N which forms at a lower pH.

"Green Urea NV reduces losses while the urea granule buffers back to the soil pH. This allows time for a significant rainfall to wash the granule into the soil or a mechanical incorporation to occur.

"What we're finding from an agronomic point of view is growers are going with their N applications in winter crops earlier, so there's less groundcover and more soil surface wind movement over the ground, driving off ammonia gas.

"We're also retaining more stubble, so when that urea granule lands on the stubble it is sitting on poorly

buffered organic material in a higher localised pH, driving ammonia losses for a longer period of time.

"Surface application of lime also has an impact on N loss. Growers understand acidity is a big issue, so they are applying lime and it is sitting on the surface and then urea is being broadcast on top of that lime. Higher pH does drive more losses through volatilisation.

"This highlights the importance of understanding N losses and minimising them through better timing, logistical planning, and the use of solutions like Green Urea NV which can help retain more N in the system and reduce losses."

#### More trials underway

The 11 southern Australian sites are among a total of 19 trial sites located across South Australia, Victoria, New South Wales, Queensland and Tasmania where IPF's R&D team is conducting volatilisation trials.

These sites have been strategically selected to represent a diverse range of soil textures, properties, and cropping segments. More results and insights from other regions will be released later this year.

## EASY LIQUIDS

# Tank sensors enhancing farm management

**Operational efficiency is essential for Incitec Pivot Fertilisers (IPF) to maximise product usage and ensure timely delivery to customers. To support this, IPF's EASY Liquids has introduced tank monitoring sensors to streamline operations and improve fertiliser delivery and stock management, ensuring farmers have fertiliser supplies readily available, particularly during peak seasonal demand.**

## Optimising farm operations with real-time monitoring

Before implementation, EASY Liquids relied on manual checks to monitor liquid fertiliser levels in storage tanks across farms.

Farmers were tasked with reporting stock levels, which could lead to errors or delays, especially during busy periods.

EASY Liquids Product Manager, Ben Anderson, said this lack of visibility has often resulted in costly logistical challenges.

"During peak seasons, farmers have a lot on their plate, and relying on them to manually check tank levels can lead to shortages or unnecessary trips," Ben said.

To address these challenges, EASY Liquids partnered with remote sensing technology provider, INCYT, to install wireless pressure sensors on hire and storage tanks.

This technology enables real-time monitoring of tank levels, providing immediate visibility for both operations teams and farmers, resulting in a more efficient and streamlined operation.

## Driving value on farm

Real-time tank monitoring saves farmers time by allowing them to monitor tank levels remotely by a dashboard, providing full visibility and proactive alerts when it's time to refill and helping them stay prepared.

Moree-based Australian Food & Fibre (AFF) Farm Manager – Telleraga, Jake Stringer, said the real-time tank monitoring sensors have had a positive impact on daily operations.

"Before using the system, we spent a lot of time driving around the farm to manually check tanks, especially during busy seasons," Jake said.

"Now, I can check all 30 tanks from my phone, whether I'm in the office or out in the paddock. It saves us a lot of time and effort.

"Having the ability to prioritise which tanks need filling first has been incredibly helpful, particularly during peak periods. I no longer have to worry about running out of product because I can track everything in real time."

Regarding efficiency and cost savings, Jake said the system allows him to track usage over time, making sure the right amount of fertiliser is being applied at the right rate.



"This precision has helped reduce waste and improve overall cost efficiency," Jake said.

"Instead of having to check in with the team constantly, I can now tell them which tanks need attention based on the real-time data.

"This has helped streamline communication across our supply chain, enhancing efficiency and simplifying the management process."

## Increased efficiency through automation

Live data from the sensors has transformed the way EASY Liquids operates.

National Operations Manager at EASY Liquids, Dale Richter, said the sales team had to previously rely on communication with production staff to confirm stock availability, which often led to inefficiencies.

"With sensor data now feeding directly into the company's dashboard, the sales team can instantly view tank levels and plan deliveries, eliminating redundant communication and helping streamline the supply chain," Dale said.





**MAIN:** IPF EASY Liquids Sales Representative, Matt Urquhart, Moree, with tanks fitted with new tank monitoring sensors.

**INSET:** INCYT monitored hire tanks at Moree EASY Liquids awaiting next deployment to farm.

“By utilising the sensors, we’ve achieved significant efficiency gains, and it’s reassuring to know our inventory is accurate.

“The sales team no longer wastes time checking stock, and farmers can remotely monitor their tanks, reducing the need for manual checks.”

### Success at Whitton and Moree

EASY Liquids began deploying the INCYT units in October 2024, focussing on high-demand regions like Whitton and Moree, where crops such as cotton require precise fertiliser management.

Dale said nearly 180 units are now operational, with plans to expand to 300 across multiple locations.

“This expansion will further enhance operational efficiency, reduce waste, speed up deliveries, and streamline logistics, simplifying our customers’ experience and allowing our team to focus on what they do best,” Dale said.

### A modern approach to fertiliser management

The integration of these sensors is more than just a way for IPF to reduce manual work; it’s part of a broader shift toward automation and data-driven decision making.

As the technology evolves, Ben said EASY Liquids plans to move toward fully automated processes, potentially enabling remote tank management that adjusts fertiliser deliveries based on real-time data.

“This is just the beginning. We’re committed to modernising our systems to drive even greater efficiency and cost savings,” Ben said.

“Our long-term goal is to expand this technology across more farms and integrate it further into the broader agricultural market.”

IPF is committed to helping farmers improve productivity and profitability by expanding its range of products and services, with a focus on nutrient efficiency, flexibility, and environmental performance.

**For growers within IPF’s footprint interested in adopting this technology, please contact your local IPF representative.**

## AWARDS

# IPF honoured in AFR Customer Champions awards



Incitec Pivot staff and customers at our Portland PDC Open Day in 2024.

**Incitec Pivot Fertilisers (IPF) achieved a significant milestone in November 2024, winning the Established Business-to-Business category in The Australian Financial Review's Customer Champions awards.**

The award recognises IPF's unwavering commitment to Australian growers and its innovative approach to delivering high-quality fertiliser products and services.

IPF President, Scott Bowman, says the award is testament to the strong relationships IPF has built over decades of working with farmers.

"Our customers are at the heart of everything we do, and this recognition demonstrates our passion for helping growers succeed," Scott said.

"We've always believed that when farmers do well, the whole community benefits."

### Supporting farmers across channels

With a broad distribution network, IPF operates a dynamic business model that caters to both business-to-business (B2B) and business-to-consumer (B2C) channels.

Through its dealer network, IPF supplies a diverse range of fertilisers across multiple farm types, while a dedicated B2C presence in Tasmania allows direct engagement with local growers.

This dual approach helps IPF tailor solutions for different farming needs and ensures growers receive expert advice – whether through trusted dealers or directly from IPF's agronomy and farm services teams.

"Our mission is to provide farmers with the right products, knowledge, and support they need," Scott said.

"Every farm is unique, and we take pride in offering customised soil analysis, environmental guidance, and nutrition planning that helps farmers boost productivity."

### Building partnerships through innovation and reliability

IPF's industry stewardship role is strengthened by its market-leading research and development initiatives.

Ongoing trials in enhanced efficiency fertilisers (EEF) such as Green Urea NV and eNpower help farmers reduce greenhouse gas emissions and optimise yields.

IPF also manages significant manufacturing and distribution operations – spanning from Phosphate Hill to Geelong – to ensure a consistent fertiliser supply for Australian growers.

"Our goal is to be more than just a supplier; we aim to be a trusted partner," Scott said.

"By maintaining transparent procurement strategies and mitigating risks around commodity volatility, we help farmers secure the inputs they need, when they need them."

### A focus on sustainability and future growth

Sustainability is a cornerstone of IPF's strategy. By targeting net-zero emissions by 2050 and investing in next-generation smart fertilisers, the business actively supports the shift toward more responsible agricultural practices.

"Through our research with the ARC Hub for Smart Fertilisers, we're committed to developing innovative products that enhance productivity while reducing environmental impact," Scott said.

"We want to support the next generation of growers. From advanced soil testing through our Nutrient Advantage laboratory to R&D in EEFs, everything we do is about fostering long-term prosperity for Australian agriculture."

### Looking ahead

IPF remains focused on delivering greater value to its customers, continuing to invest in its network, technology, and people, ensuring that farmers benefit from reliable supply, expert advice, and flexible distribution options.

"This award is an incredible honour, but our work is far from done," Scott said.

"We'll keep innovating and partnering with growers so that together, we can feed Australia – and the world – more efficiently and sustainably."

## ON FARM RESULTS

# How Granular Trigger is helping carrots thrive

**Virginia in South Australia is a powerhouse for vegetable farming, producing some of the country's best carrots, potatoes and greens.**

Farming in Virginia, where alkaline soil and salinity can impact plant growth, requires solutions to decrease soil salinity, while improving and protecting soil.

Incitec Pivot Fertilisers (IPF) Farming Specialist, Daryl Higginson, recently worked with a local carrot grower to tackle this challenge, suggesting the introduction of Granular Trigger into their normal fertiliser schedule.

Trigger is a low dust granular humic acid soil amendment designed to enhance soil fertility and buffer against salinity stress.

"Farming in heavy, alkaline soils can tie up nutrients, and we wanted to see if Trigger could help unlock more of what's already in the soil," Daryl said.

"Trigger binds to the sites in the plant where salt would normally attach, allowing irrigation to effectively water the plants, but also flush excess salt down the soil profile. This helps maintain both soil health and crop productivity."

### Trialling Trigger in the field

A commercial scale on-farm trial was undertaken that saw 350kg/ha of Granulock Blue with 50kg/ha Trigger applied in a blend at sowing, leaving the rest of the fertiliser program unchanged.

"The trial was set up across multiple beds under sprinkler irrigation to measure performance," Daryl said.

"We kept everything the same apart from adding Trigger, so we could isolate the impact on the crop."

As a soil ameliorant, Trigger is highly compatible with other fertilisers, easy to use in a custom blend and seamlessly integrating into a diverse nutrient management program that optimises crop performance.



Carrots at 62 days old, halfway through the growing cycle at the on-farm trial.



Crop at 93 days old, three weeks before the carrots are harvested.

### Unlocking nutrients for healthier crops

Alkaline soils are notorious for limiting key nutrients like phosphorus (P), iron (Fe), zinc (Zn) and manganese (Mn).

Soil with low organic carbon and low cation exchange capacity (CEC), can hinder nutrient availability and impact crop performance.

"We saw better nutrient uptake across the board, particularly nitrogen (N), phosphorus (P), magnesium (Mg) and calcium (Ca), which are all critical to the overall vigour of the plant, and

healthier plants lead to better yield potential," Daryl said.

Throughout the trial, tissue testing showed that carrots treated with Trigger had significantly higher levels of key nutrients compared to untreated crops.

### Beating salinity stress

For growers irrigating with reclaimed water, with high levels of sodium (Na) and chloride (Cl), it is a constant challenge.

When excess salt builds up in the soil, it restricts nutrient uptake, especially potassium (K), which is crucial for plant energy and water regulation.

"Trigger helps the plants combat sodium and chloride, and irrigation helps flush excess salt from the soil profile providing the crops with a better chance of taking up nutrients and keeping the crop healthier," Daryl said.

"The soil and plant tissue tests taken through the season showed that Trigger reduced the sodium and chloride levels in the plants while improving potassium availability."

This leads to stronger root systems and overall resilience against stress.

### The impact in the paddock

There were clear differences in the field with treated blocks.

"The crop just looked healthier and more uniform across the paddock," Daryl said.

A key benefit of Trigger is its impact on soil aggregation, a biological activity crucial for both long-term soil health and productivity.

"We're seeing better water retention and less compaction, which translates to better plant resilience. A more balanced soil profile leads to stronger, more consistent yields," Daryl said.

### A practical solution for growers

For growers, Trigger has become a tool in their nutrient management strategy.

"My advice is simple – try it for yourself, even if it's just half a paddock, you might see the difference, along with improved nutrient uptake and hopefully in time a better soil structure," Daryl said.

**To find out more contact your local farming specialist at the [Smart Fertilisers website](#).**

## AGRONOMIST INSIGHT

# Key trace elements essential for pasture

IPF Technical Agronomist, Fiona McDonald

**Trace elements in pastures help maintain productive pasture systems and livestock productivity. As autumn begins, it's a timely reminder of the key trace elements vital for healthy and productive pastures — molybdenum, copper, and boron — and the importance of plant tissue testing to diagnose deficiencies.**

Molybdenum (Mo) is the least abundant of the trace elements in soils and is taken up by the plant through the plant's roots from soil solution, with the help of specialised transporters.

Molybdenum is required in only very small amounts by plants and once in the plant, it's mobile, with higher concentration present in leaves. It plays an important role in nitrogen (N) metabolism and the synthesis of protein. In legumes, the bacteria *Rhizobium* requires molybdenum to fix atmospheric nitrogen (N<sub>2</sub>).

## Molybdenum deficiency symptoms

Molybdenum deficiencies are widespread throughout Australia. Due to molybdenum's role in N fixation in legumes, deficiency symptoms are similar to N deficiency and include stunted growth and yellowing of leaves starting with older leaves.

Nodulation will also be poor and root nodules may look green or colourless instead of the typical healthy pink colour.

In non-legume pasture species, molybdenum deficient leaves may have a mottled pale appearance, stunted growth and burn on the margins of mature leaves, which is caused by a shortage of proteins and accumulation of nitrates.

## Application considerations

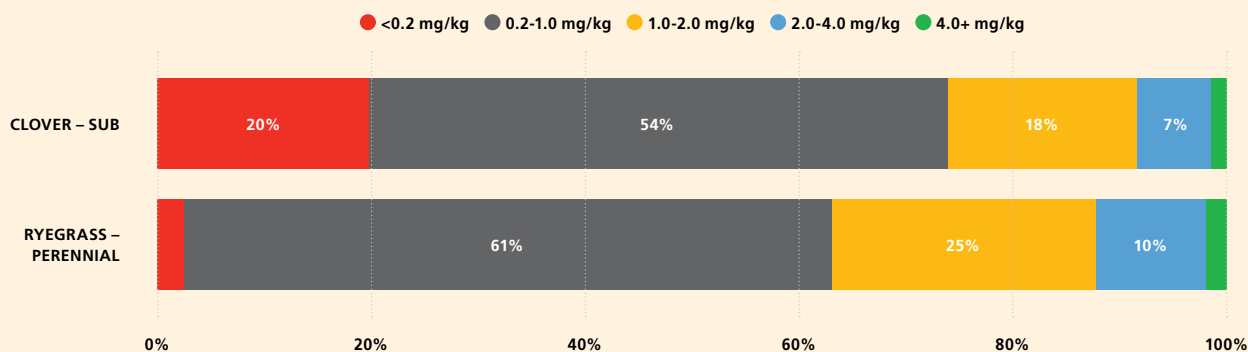
Molybdenum and copper are mutually antagonistic to plant uptake, that is, one restricts the uptake of the other.

If excessive rates of molybdenum are applied, it may induce a copper deficiency in livestock as molybdenum combines with copper in the rumen. Therefore, it is important to only apply small amounts of molybdenum when correcting a deficiency, and to also consider the copper level.

In pastures grown on acid soils, molybdenum can be considered for application every five to 10 years at a rate of 50-100 gMo/hectare. This can be done using either Superfect® Mo or as a trace element coating. Three rates are available for the molybdenum coatings – 0.015%, 0.025% or 0.05%.

Liming increases the pH which in turn increases molybdenum availability to the plant. If you are liming, it is not recommended to apply molybdenum in the same year. Instead, wait and check the molybdenum levels with a plant tissue test.

**MOLYBDENUM:** Nutrient Advantage consolidated leaf tissue tests of common pastures in south east Australia for Molybdenum (mg/Kg) from January 2019 to February 2025.



Each year will be different, however, based on the last 6 years of samples 20% of sub-clover samples could be classed as deficient. Critical values differ by pasture type so it's important to test at regular intervals

### Why copper matters

Copper (Cu) is very immobile in the soil. It is either tightly held on inorganic exchange sites or strongly bound to organic matter.

The concentration of the trace element in soil is low and is not easily lost by leaching. Other factors that reduce availability is the soil pH — as the pH increases, copper availability declines due to stronger absorption.

Copper has an important function in the animal; it aids in haemoglobin formation and has a role in bone and joint development. It is also important in the effective functioning of the digestive tract, the development of a protective sheath around nerves and for the pigmentation of hair.

### Copper deficiency symptoms

Deficiency symptoms in cattle include change of hair colour, diarrhea, weight loss, and falling disease which can cause sudden heart failure and bone fracturing.

In sheep, deficiency symptoms include loss of crimp, steely wool, swayback or enzootic ataxia of lambs. Newborn lambs may be unable to stand or are stillborn, while lambs up to six months of age may develop an uncoordinated gait, and reduced conception rates.

There are two mechanisms that can result in a copper deficiency. Primary occurs when soil with low copper levels produces a pasture with low copper levels and therefore the sheep/cattle also have low levels. Secondary occurs due to the antagonistic relationship of copper with other nutrients.

Molybdenum, sulfur and iron can all reduce the availability of copper to animals by forming insoluble complexes. They can act alone or in combination.

As copper does not move from older growth to younger leaves, deficiency symptoms tend to

display on the growing points and the leaves. The main symptom is die-back in younger leaves, also described as chlorosis or yellowing, first developing on the leaf edges.

### Application considerations

If you need to apply copper there are several options, including granule blends or spray on coatings, depending on product and rate requirements.

Typically, copper is applied to the soil at 1 to 2 kg/ha. How long the application remains effective will depend on climate, soil and nutrient management.

If copper has not been applied to a pasture for a number of years, it could be worth considering applying a low rate with the autumn SuPerfect® application, followed by a tissue test in winter or spring to assess copper levels in the pasture.

Animal health experts may also suggest products such as copper licks, blocks, water additions, feed additives, rumen boluses, drenches and injectables. Make sure you are sharing information between your veterinarian and pasture adviser so as not to double up on copper.

If your pastures also need molybdenum and boron, make sure tissue testing is undertaken, then if required, apply with an autumn or spring topdress fertiliser application.

### Role of boron

Boron plays an important role in plant physiology, cell division and metabolism, and protein synthesis, pollen viability, and seed and cell wall formation.

Boron is mobile within the soil so factors that can affect root uptake include weather conditions. Dry weather can cause a temporary deficiency, then once rainfall is received, symptoms may disappear.

It is also subject to leaching, so in a lighter textured, well-drained soil the soil may be naturally low in boron.

Once in the plant, boron is immobile and not translocated from old to new tissues.

### Boron deficiency symptoms

A boron deficiency often results in death of growing points and affected plants exhibit rosetting, poor seed set, and breakdown of internal growing tissues.

Crops vary significantly in their responsiveness to boron, with legumes highly responsive.

### Application considerations

Caution is required when using boron fertiliser. There is a narrow range between deficiency and toxicity so local advice should be sought on appropriate application rates and methods.

There are several factors that should be considered including plant species, crop rotation, weather conditions, and soil properties. Conducting a tissue test is the first step to determine application rates.

### Diagnosing with a plant tissue test

If you suspect a trace element deficiency, undertaking a plant tissue test is the most useful and cost-effective way to confirm a deficiency.

Tissue tests provide a more accurate reflection of nutrient uptake than soil tests alone. This is particularly important for molybdenum, as tissue testing is the only way to determine sufficiency, since soil tests do not assess it.

The Nutrient Advantage® Laboratory offers a complete pasture tissue testing service for graziers and their advisers.

Tissue tests can be done at any time, but they are usually conducted in winter or spring when the pasture is actively growing and it's easy to select a good representative sample.

## AGRONOMIST SPOTLIGHT

# Meet the team: Fiona McDonald

Technical Agronomist, Central Victoria

**Originally from the Blue Mountains in NSW, IPF Technical Agronomist Fiona McDonald, had an early passion for agriculture, growing up on a hobby farm and developing a strong connection to regional life.**

That interest led Fiona to study a Bachelor of Rural Science (Honours) at the University of New England, where she developed a deep understanding of agricultural systems.

Fiona said during the early years of her career, she was particularly drawn to soil testing and grid mapping.

"Understanding variability in soils and how targeted nutrient management can optimise productivity was a real eye-opener for me," Fiona said.

"It's amazing how even small changes in soil conditions can have a big impact on farm performance."

Since joining IPF in 2018, Fiona's role has seen her work across multiple areas of the business,

including hands-on experience in agronomy, research, and practical on-farm solutions.

Based in Sunbury, Victoria, Fiona supports pasture, dairy, and cropping customers across Central Victoria, Gippsland, south-western Victoria, and into South Australia.

"I love getting out on farms, working alongside agronomists and growers to find solutions that make a real difference," Fiona said.

**"Every farm is unique, and I enjoy tailoring recommendations that help improve both efficiency and sustainability."**

Fiona is both a Fertcare Trainer and a Fertcare Accredited Advisor, which means she plays a pivotal role in educating growers and agronomists on best practices in soil nutrition. She also contributes to research trials, custom fertiliser blends, and IT solutions that support more informed decision-making.

"Agriculture is always evolving, and I think it's important to embrace innovation," Fiona said.

"I've been lucky to work in different roles at IPF, from agronomy to IT and research, and I enjoy using that knowledge to help customers.

"One day I'll be troubleshooting software, the next I'm helping a farmer fine-tune their nutrient program.

"At the end of the day, it's about ensuring growers get the most out of their fertiliser investment and achieve the best possible results."

With nearly seven years at IPF, Fiona remains driven by curiosity, problem-solving, and a commitment to helping Australian farmers maximise productivity through smarter agronomic decisions.

**To find out more about Fiona's work, check out the following Agronomic Insight, or contact her directly at: [fiona.mcdonald@incitecpivot.com.au](mailto:fiona.mcdonald@incitecpivot.com.au)**



# Transforming waste into value

**A significant milestone for the sustainable use of plastic packaging in Australia was realised in February with the official opening of the nation's first purpose built bulk bag recycling facility in Toowoomba, Queensland by Circular Communities Australia (CCA).**

This state-of-the-art facility is designed to recycle woven polypropylene (WPP) industrial bags, including Incitec Pivot Fertilisers' (IPF) 1-tonne and 25kg fertiliser bags, into reusable resin pellets that can be used to manufacture a range of new products including chairs, park benches, fence posts, sound abatement panels, and evaporation covers for dams.

## Committed to recycling

IPF has been a proud participant since the beginning of the Big Bag Recovery (BBR) program in 2015.

Now an Australian Government Accredited Product Stewardship Scheme, BBR is dedicated to collecting plastic bags over 15kg or litres, such as those used for fertiliser, seed, and animal feed, for recycling, and has worked to establish CCA and its Australian recycling facility.

Since partnering to establish the program, IPF has seen 3.5 million kilograms of IPF plastic bags recovered for recycling, preventing them from going to landfill.

This has resulted in associated savings of approximately \$7.3 million in landfill costs and preventing an estimated average of 440 tonnes of carbon dioxide equivalent (CO<sub>2</sub>e) in greenhouse gas (GHG) emissions per year.

## Bag recovery evolution

IPF's participation in bag recovery began in 2015 with the Sugarcane Fertiliser Bag Recovery Trial, which was conducted in partnership with packaging suppliers, recycling companies, councils, and government departments.

The success of this trial led to the establishment of the Farm Waste



CCA Managing Director Stephen Richards and co-founder Stewart Ford with a pallet manufactured using recycled IPF fertiliser bags.

Recovery Program in 2015, with IPF as the founding member, which later transitioned into the Big Bag Recovery program in 2021—now an accredited national stewardship initiative.

Through this initiative, woven polypropylene (WPP) and low-density polyethylene (LDPE) plastics, such as silage wrap, are collected from farms, local council depots, and dealers.

Farming customers are encouraged to return their used fertiliser bags to the nearest Big Bag Recovery collection point to keep plastics in circulation rather than contributing to waste.

## Toowoomba facility impact

The newly launched Toowoomba recycling facility represents a major advancement in creating a sustainable circular economy right here in Australia.

It is the first facility of its kind in Australia, joining only 17 similar facilities worldwide.

Key benefits of the facility include diverting up to 4,000 tonnes of plastic from landfill annually and reducing GHG emissions by over 5,871 tonnes of CO<sub>2</sub>e per year, by replacing virgin plastics with recycled pellets.

It will also generate local employment, starting with eight full-time roles,

with expectations to grow to 15.

The facility's state-of-the-art technology will allow for the efficient processing and transformation of these plastics into tiny resin pellets, which can then be used for more sustainable plastic product manufacturing.

## Looking Forward

IPF has continued its commitment to responsible packaging and recycling by purchasing bags with a 30% recycled content, and by signing a renewed agreement with Circular Communities Australia as IPF's primary bag recycling partner.

Together, BBR and CCA are also planning further expansion, with more recycling facilities expected to open in the future. This continued growth will enhance the ability to recover and repurpose more plastic waste across the country.

IPF customers are encouraged to continue to participate in the Big Bag Recovery program by returning their used fertiliser bags to designated collection points, to help collectively contribute to a more sustainable future for Australian agriculture.



**Incitec Pivot Fertilisers**

