# DIG DEEP

Industry Insights from Incitec Pivot Fertilisers | June 2024 | Edition 02

## Global Trading Overview

## Managing nitrogen topdress

## Phosphate Hill – a mine unlike the rest

## Sustainable nitrogen use in cotton

## ... and more

Incitec Pivot Fertilisers

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Incitec Pivot Fertilisers
June 2024
Edition 02



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Cover Image: David McRae, IPF Technical Agronomist, with Cindy Pursehouse, Breeza Station, NSW.

PRESIDENT'S NOTE

# Welcome to the second edition of *Dig Deep*

Scott Bowman

**I'm pleased to be introducing the second edition of our magazine, *Dig Deep*. As Australia's largest east coast manufacturer and distributor of fertilisers, agronomy services and soil and plant testing, Incitec Pivot Fertilisers (IPF) is proud to deliver our relevant industry insights.**

It's been a busy few months since our previous edition in February. Ahead of winter crop planting, our teams across Australia's east coast have been working hard to meet a steady stream of demand from growers for our fertiliser products and services.

As we move into the winter period I've been reflecting on the breadth and capability of IPF and how we are uniquely positioned to partner with growers and drive productivity and value in their businesses.

In this edition, you'll read about how our team at Phosphate Hill use their specialised and diverse skills to transform raw materials into the fertiliser products growers from Far North Queensland to Tasmania rely on to grow productive, valuable crops.

As a business, IPF invests significantly in research and development. Through our Nutrient Advantage Laboratory, agronomy team and our industry partnerships such as our investment in the ARC Research Hub for Smart Fertilisers within the University of Melbourne, we are setting and executing the innovation agenda for the fertiliser industry of the future.

In this month's Dig Deep, we profile how our R&D team has developed a unique protocol for capturing, measuring and quantifying the greenhouse gases emitted by fertilisers. This protocol will help growers understand how their investments in Enhanced Efficiency Fertilisers like eNpower and Green Urea can not only decrease their environmental footprint, but increase their yields.

Ultimately, it is our deep, longstanding customer and grower relationships that mean we're able to leverage this research and innovation to drive value in our customers' businesses through enhanced crop performance.

Our investment into the fertiliser industry, for example through the recently completed upgrades to liquid coating infrastructure at our Tasmanian distribution centres, is a big value add and something I'm really proud of, and I look forward to being able to shine more of a light on our investments in this area in coming months.

While some in the south are still waiting on that autumn break, most winter crop is in the ground and growers are looking ahead and planning their nitrogen topdress requirements.

IPF's soil test data is showing that soil nitrogen levels are generally low and growers are working closely with their agronomists to develop tailored nitrogen strategies to optimise yields and returns.

Since our last edition, we announced an update on the IPF business sale process and shared that we are in advanced negotiations with prospective buyer, PT Pupuk Kalimantan Timur (PKT). PKT are one of the largest fertiliser producers in Asia. Should the sale go ahead, PKT intends to continue supplying fertilisers to the Australian market, support the retention of the IPF workforce and grow the business.

There has also been a new leadership structure announced for IPF's parent company, Incitec Pivot Limited. As part of this, I've been appointed IPF President. I'm really pleased to take on the role permanently and continue to work with IPF's talented team. We are focused on strengthening and growing IPF as we continue to provide customers with products and services needed to increase productivity.

We will continue to keep our customers, growers and other stakeholders informed of developments.

Enjoy reading this edition of *Dig Deep*. I hope you find it interesting and insightful.

Regards,
Scott Bowman
**President, Incitec Pivot Fertilisers**

GLOBAL TRADING OVERVIEW

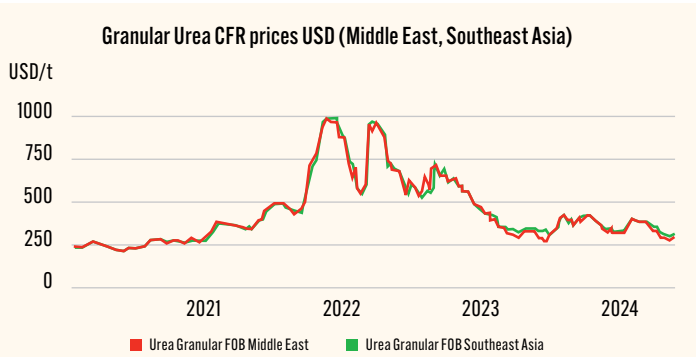
# Q1 2024 in review

**In recent months, global prices for nitrogen and Ammonium Phosphate (AP) have either plateaued or reduced.**

Lower nitrogen prices have been driven largely by lower demand from India. The lower AP price is a response to short-term increase in global supply, particularly from China. Geopolitical tensions in the Red Sea have continued in recent months. Ship owners are avoiding the area and detouring via South Africa. This is keeping freight costs high, and they are expected to stay at these levels for the next few months. Port congestion, particularly at Newcastle and Geelong, has led to bulk vessels experiencing delays in getting a berth. Our Shipping and Planning teams have been working to optimise port calls and rotations to reduce delay and cost as much as possible.

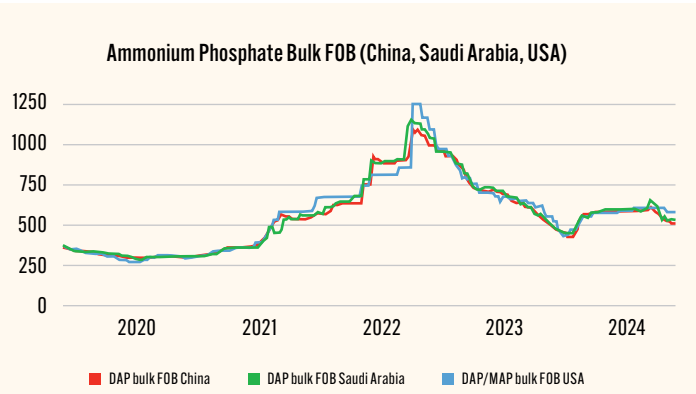
## Nitrogen

- Nitrogen production across South East Asia continues to be challenged by unexpected plant downtimes, reducing supply from these markets.
- The market continues to watch for export to restart from China. This was anticipated to begin in May, but strong domestic prices in China suggest this will be delayed to Q3 2024.




## Ammonium Phosphate (AP)

- Lower AP prices in some markets is a response to a short-term increase in global supply, particularly from China, which has outstripped demand in the same window.
- Meanwhile, inventory in key markets like Pakistan, India and the United States remains low and the demand outlook is strong. This suggests the current period of lower prices may be brief.




*Current as at time of publication

Source: Argus

# Looking ahead

▶ **After a period of abundant supply**, tighter supply and demand dynamics in the AP market will probably return and become more acute as seasonal demand becomes clear in key markets of Asia, the United States and Brazil in late Q2 2024.

▶ **Geopolitical tensions**, including unrest in the Middle East, war in Ukraine and the US Presidential Election will mean the AP and nitrogen markets remain relatively volatile.

▶ **As with Q4 2023**, market participants will continue to closely watch Crude Oil markets for conflict related disruptions and their potential to pressure fertiliser prices.

▶ **Key crop prices are volatile** which impacts growers' terms of trade. While there has been a reduction in some prices, generally they remain above the most recent cyclical lows.

Price risk in response to all the above factors will continue to be volatile, however key indicators point to a period of lower prices followed by greater stability and a possible price increase during late Q2 and Q3.



RESEARCH & DEVELOPMENT

# Measuring your emissions in field

**Farming in an increasingly sustainable way while improving productivity is front of mind for many Australian growers, and there are opportunities available to engage in R&D and new products to address this challenge.**

Nitrogen fertilisers are a source of nitrous oxide ($N_2O$) and ammonia ($NH_3$). Nitrous oxide is a potent greenhouse gas (GHG), and ammonia is an atmospheric pollutant that can indirectly lead to further nitrous oxide emissions when deposited on land.

Fortunately, there is technology available to growers today to help them maintain yields, while reducing the nitrous oxide ($N_2O$) and ammonia ($NH_3$) emissions associated with nitrogen fertilisation.

**A major focus of IPF's Research & Development team around Enhanced Efficiency Fertilisers (EEFs) like eNpower® and Green Urea NV®, is to not only reduce emissions of GHGs but also to provide growers with better nutrient use efficiency, minimising losses and maintaining the nitrogen in the soil for crop growth cycles.**

With the efficacy of these EEF products established, IPF's Research and Development team, led by Research Agronomist, Robert Impraim, has been working on simplifying ways to measure the GHG and $NH_3$ emissions from soils fertilised with EEFs (compared to conventional fertilisers).

## Trapping gases

This work has led to the development of static chamber and simplified pipe $NH_3$ trap systems, which ultimately allows a grower, with the assistance of IPF's agronomists, to capture the gas emitted from their soil in glass vials or onto $NH_3$ retainer, before submitting them for measurement and analysis.

The system uses a series of enclosed, non-steady state chambers that sit over a section of the soil surface. The accumulation of gas within the chamber is monitored over time by drawing out headspace gas into a glass vial which is subsequently analysed for $N_2O$. For $NH_3$, the headspace gas is captured on an acid treated material which is later extracted and analysed with a flow analyser.

For Robert and his team, the chamber and pipe $NH_3$ trap systems are helping bring their research into GHG and $NH_3$ emissions reduction to life and drive adoption of EEF technology by growers.

**"We know we need to reduce GHG and $NH_3$ emissions from farming and nitrogen fertilisation, and we know that we have the technology and products to do that in the form of EEFs like eNpower and Green Urea," Robert said.**

"Developing a GHG emissions measurement system that is practical, simple and inexpensive to use is an important piece of the sustainability puzzle, as it helps not only capture underlying data but also physically demonstrate to agronomists and growers that EEF technology works and is worth the investment."

## Looking ahead

As an industry leader and pioneer in this field, IPF is investing in measuring emissions across different soil types, cropping systems, and fertilisers to build a comprehensive database.

With a focus on improving the functionality and adoption of the chambers by industry agronomists, trials are being set up and planned across several field sites, including the Wimmera, Goulburn Valley, Bacchus Marsh, Victoria and Grenfell, NSW.

These trials enable IPF to compile emissions data from a variety of soils and crops with different fertiliser applications. The resulting database will be used for a comprehensive modelling study to predict emissions based on soil type and fertiliser application.

AGRONOMIC INSIGHT

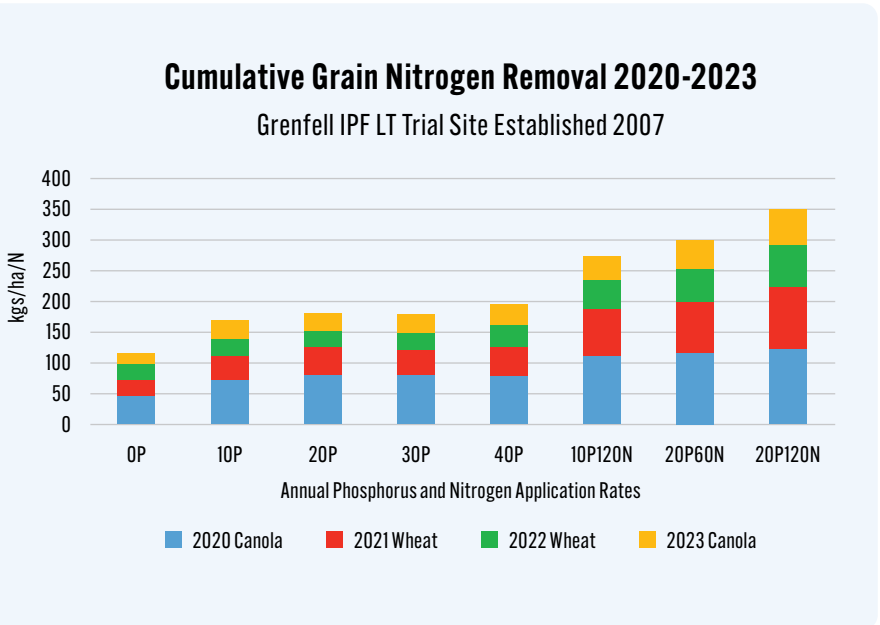
# Managing nitrogen topdress in 2024

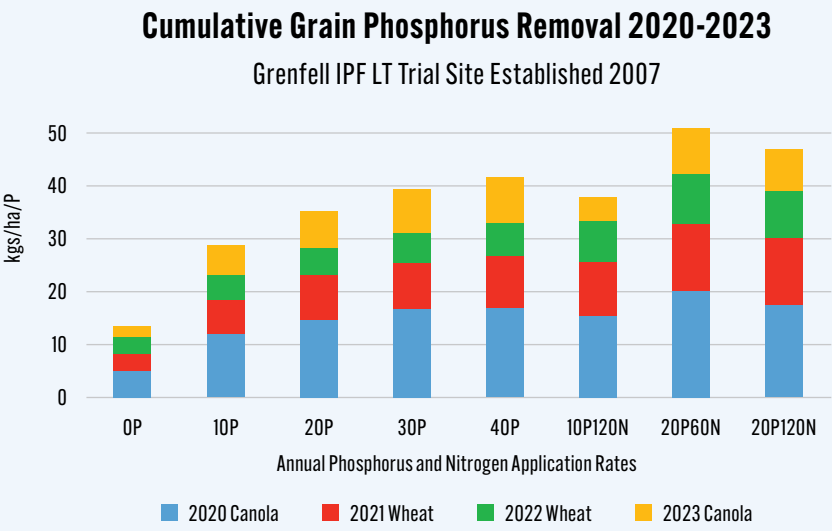
IPF Technical Agronomist, Jim Laycock

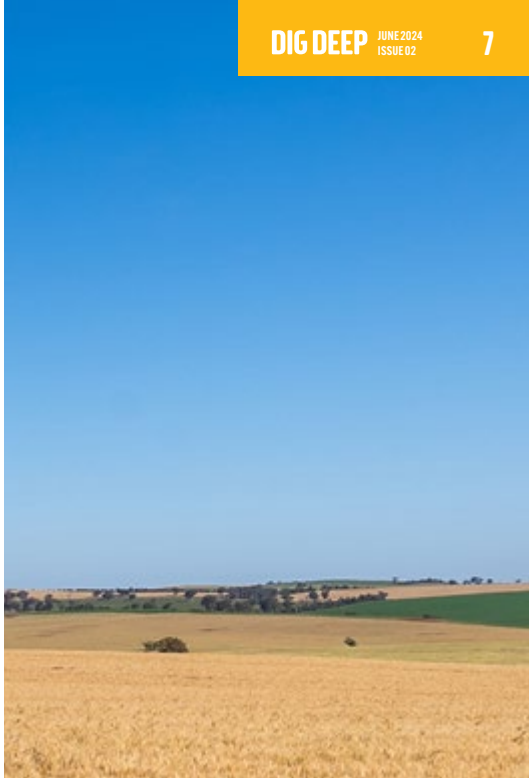
**In most areas of the southern region, 2024 is shaping up to be another good winter crop season after what some have described as the 'best El Nino on record' delivered unexpected rainfall to many. But, after several big nutrient removal seasons, soil-nitrogen levels are low and growers will need a tailored nitrogen strategy to optimise grain yield and returns.**

Nitrogen (N) is essential for dry matter production, shoot density and potential yield in cereals. When crops begin to mature, N within the plant is redirected to developing grains. Carbohydrates are then deposited within the grain, and it is the level of carbohydrates that determine grain size and yield. This dilution of N in grain also determines final grain protein levels.

In short dry springs, crop yields are reduced because they are unable to fill each grain, and the percentage of grain protein is much higher and often grain size is smaller. Longer soft finishes to the growing season allow crops to fill to full capacity, but if adequate N is not available then low grain protein levels can result from diluted N levels.





**Nitrogen budgeting**

Achieving the targeted yield, grain size and protein results in winter cereals can be a juggling act when it comes to managing N inputs between preplant and booting, and for irrigated and high-rainfall systems, right through to flowering.

As there are numerous things that can affect crop yield and protein potential, it's critical to identify whether N is the only limitation.

The first step in planning N applications is a simple budgeting process to assess how much N you need to grow a target yield and protein. Once you know the N demand, you can determine the amount of fertiliser required.

**Estimating existing N supply**

There are several tools available to advisers to help determine the existing nitrogen supply, such as reviewing paddock fertiliser and crop histories, deep soil nitrogen testing, in-crop NDVI, and shoot density. The best decisions are made using reputable information collected from a range of sources.

Information such as previous crop yield, previous grain protein levels, crop rotation, fallow weed control, soil moisture levels, seasonal conditions and expectations can all help guide topdressing decisions.

Pre-plant deep soil nitrogen test results are another excellent resource for nitrogen management.

One of the disadvantages in low soil nitrogen paddocks if additional nitrogen has not been applied at seeding is there may be a requirement for early topdressed nitrogen at mid-tillering to establish the desired target shoot density by GS30. Easy N® through streamers or dribble bars is ideally suited to this scenario with accurate placement, timely application and potentially less volatilisation losses than urea on alkaline soils.

Sampling in-crop can also play a role where deep N tests weren't taken pre-plant. When sampling post planting, be careful to avoid any banded pre-plant nitrogen or starter nitrogen fertilisers.

**N losses when topdressing**

When broadcast on the soil surface both liquid or dry urea or urea containing products or blends can be susceptible to ammonia ($NH_3$) loss. Factors that can lead to increased $NH_3$ volatilisation losses from top dressed urea are:

- light rain post application, enough to dissolve the urea granule but not enough to wash the dissolved granule into the soil
- crop residue on the soil surface
- temperatures above 18°C
- alkaline soils
- wind
- low soil cation exchange capacity
- application to a moist soil that dries after application

The safest applications are those made to dry clay soils, in low humidity conditions with no wind and sufficient rainfall to move the urea into the soil within a few days of the application.

Methods to accommodate these losses include increasing the rate of N applied, or using Enhanced Efficiency Fertilisers which are coated to reduce nitrogen losses, like Green Urea NV®.

IPF trial work in the Mallee in 2014 demonstrated the effectiveness of Green Urea NV® over urea with an early September topdress and 17 days before a welcome rainfall event of 35mm. The Green Urea NV® treatment returned a significant grain yield response over urea (0.41t/ha), protein response (0.7%) and improved nitrogen use efficiency from 33.7% for urea to 60.5% for Green Urea NV®.

All farming systems should aim to maximise nutrient use efficiency. When choosing the most appropriate product to apply, consideration should be given to the rate of application, the frequency of application, the timing of the application, the economic objectives, and any environmental consequences.

Scan QR code to read more

Phosphate Hill

## HIGH PERFORMING – AUSTRALIAN MADE

# Phosphate Hill – a mine unlike the rest

**Mono-Ammonium Phosphate (MAP) and Di-Ammonium Phosphate (DAP) are the world's most traded and used phosphorus fertilisers. Ideal planting fertilisers, they provide readily available phosphorus to emerging plants, stimulating root development, early growth and setting growers up for even more, productive crops. IPF is Australia's only manufacturer of ammonium phosphate fertilisers. Its experienced people with a diverse set of skills mean IPF stands alone in its ability to mine raw phosphate rock and turn it into market leading fertiliser products, all in one place – its Phosphate Hill asset, 1000 kilometres from Townsville.**

### Success at Phosphate Hill

With a 400 strong team on site, mining up to two million tonnes of phosphate rock to manufacture up to one million tonnes of Granulock Z, MAP and DAP fertilisers each year, operations at Phosphate Hill cover everything from mining to beneficiation, granulation and distribution by road and rail to Townsville.

Complemented by a world-scale sulphuric acid plant at Mt Isa, 150kms to the north, which captures and repurposes acid from Glencore's Mt Isa Mines waste stream, Phosphate Hill is a uniquely end-to-end operation, delivering growers the Australian made fertilisers they need to be more productive.

But the location of the facility, in the heart of Queensland's Gulf Country, means this isn't without its challenges.

### Adapting under pressure

The majority of the team at Phosphate Hill fly in and out of Townsville, so when Cyclone Kirrily bore down on Townsville in late January 2024, delivering hundreds of millimetres of rain, localised flooding and power outages, continued operations of the site were made extremely challenging.

Ongoing flooding cut the rail line between Phosphate Hill and Townsville for the whole of February, preventing rail transport of fertiliser from the site to distribution networks there.

Fortunately, the agility of the Planning and Logistics team saw 28,000 tonnes of product trucked across February and early March, meaning fertiliser continued to be delivered to customers and the mine kept operating, albeit at reduced rates.

Phosphate Hill Management Team

For Planning and Logistics Manager, Brett Clapperton, the impacts of the cyclone created a moving target for the Phosphate Hill team to manage.

"The location and environment at Phosphate Hill can be challenging, which means our team has to have a good understanding of the stock position across the distribution network at all times, so we can make decisions as we need to," he said.

"When Cyclone Kirrily hit, and its impact continued with ongoing rain, it was a matter of coordinating the different parts of that supply chain to make sure we could safely do what was necessary to keep the mine running and keep product supply going.

"Ultimately it comes down to our team being able to collaboratively look at a range of scenarios and work out how we can lower any risk while still deriving value for our customers and our business."

Beyond the location and nature of operations at Phosphate Hill, the skills, experience and resilience in the team at Phosphate Hill set it apart.

The management team led by General Manager Dan Kelleher comprises everything from mining and mechanical engineers to environmental and chemical scientists. Together, they work safely and efficiently to find, mine and process raw phosphate rock, before turning it into the high quality, effective fertilisers like Granulock® Z, that underpin Australian agricultural production.

Wheat fields on Eyre Peninsula. Photo: Getty




L to R - West Coast Ag's Tina Crosby, Clint McEvoy, Jake Hull, Tyson Montgomerie, and Ian Laube, IPF

# From top to bottom with Granulock Z

**From the phosphate rock mined near Mt Isa in Far North Queensland, to the fertiliser used by farmers in the Eyre Peninsula in South Australia, IPF provides the materials and services growers need to be more productive.**

Employing a team of nine, including agronomists, livestock agents and crop protection specialists, West Coast Ag at Streaky Bay is a leading provider of fertiliser to the Eyre Peninsula's wheat, canola and barley growers.

For over a decade, West Coast Ag (WCA) has sourced the fertiliser products its customers need from Incitec Pivot's distribution centre at Port Lincoln.

A large percentage of the product WCA supplies to growers in the region each year is Granulock® Z. A compound fertiliser, Granulock® Z comprises nutrients Nitrogen, Phosphorus, Sulphur and Zinc, with the Zinc at a higher rate than possible as a coating post production.

Combining these nutrients in every granule rather than blending different fertilisers, ensures every plant gets equal access to the nutrients it needs and simplifies the grower's logistics at sowing.

This manufacturing process creates an even sized granule with a high crush strength, giving growers a free-flowing, easy storing product that delivers consistent nutrient application in each row for a more even, productive crop.

The Eyre Peninsula is vast, and a large percentage of growers in the area have designated, on-farm storage facilities. IPF works to provide large volumes early each season to West Coast Ag customers, allowing them to capture freight synergies when they deliver the last of their grain to Port Lincoln before backloading with fertiliser, to store for the planting season ahead.

A highly valued customer, IPF is proud of its close relationship with West Coast Ag – a business which won the Nutrien South East Independent Business of the Year in 2021 and 2022, and National Independent Business of the Year in 2022.

**"Zinc is really important for all growers, but particularly for our broadacre cereal growers down here because of our highly calcareous, sandy soils. Granulock Z has become a very popular product for us.**

**"Previously, we would supply MAP or DAP and blend Zinc through the load at a rate of about two percent. This meant distribution throughout the paddock wasn't as even - some plants would get the Zinc and some wouldn't.**

**"With Granulock Z, you have Zinc in every granule so distribution is a lot more even and growers are telling us they're seeing consistent results from its use. We find Granulock to be a really good product as it's flexible, can run through machines easily and stores really well.**

**"Granulock SS is also popular amongst our oilseed and pulse growers, particularly for canola which likes the additional sulfur."**

**– Clint McEvoy, West Coast Ag, Streaky Bay, South Australia**

INVESTING IN TECHNOLOGY

# Automatic liquid fertiliser applications

**Two years ago, IPF gave the University of Southern Queensland (USQ) Centre for Agricultural Engineering a challenge – could they automate the entire process of precision liquid fertiliser application. The catch? They had to use existing, off-the-shelf technology. The result was an IPF funded research project which has shown how farmers can use existing technology to optimise their liquid fertiliser use to improve productivity, reduce operational costs and improve on-farm safety.**

## Key technology areas

The IPF Automation Project focused on three technology areas – variable rate technology (VRT), automated tank refilling, and product logistics. What began as a high-level concept has resulted in a proof-of-concept that automated the entire process of precision application of Easy N® – from soil sampling and prescription map development, through to product delivery, tank auto filling, and precision product application using VRT. Field scale testing of the system was conducted in a cotton crop at 'Grassdale', Dalby and in a wheat crop at the Tosari Crop Research Centre at Tummaville in south east Queensland.

## Auto refilling

One of the things the project team was able to design and demonstrate was tank auto fill. The USQ team created a nurse tank trailer with pump and plumbing, a control system manages the refill process once signalled to do so, and a remote monitoring system for the nurse tank level. Filling the tank was triggered from within the cab using an automated arm and tank level sensor signalling to turn the nurse tank off. This made the refilling process quicker and safer.

The refill system using the smart nurse tank was demonstrated to over 100 attendees of the Tosari Crop Research Centre field day in September 2023.

## New user guides

All the learnings from the project were compiled into four documents:

1. Review of current state of autonomous technology in agriculture
2. VRT user guide
3. Autonomous nurse tank trailer user guide
4. Cost-benefit tool

Tim Johnson and Corey Plant (University of Southern Queensland) with Jan Edwards, Incitec Pivot Fertilisers.

The user guides provide a detailed breakdown of the technology stack used to deliver precision application of Easy N and the first version of the automated smart nurse tank. The project team also developed an excel calculator to help farmers calculate the economic feasibility of implementing part or all the technology roadmap.

Farm technology is continually advancing. Projects like this identify how farmers can adopt autonomous technology to optimise their liquid fertiliser use, reduce operational costs, and improve farm safety.

For more information about the new user guides, contact Jan Edwards, Director of Agronomy & Ideation at Incitec Pivot Fertilisers at **jan.edwards@incitecpivot.com.au** Project partners included USQ, Precision Agriculture, Raven Precision, and Croplands.

Circular Head Distribution Centre, Tasmania.

# Boosting liquid coating capabilities in Tasmania

**Increasingly, growers are looking to the fertiliser industry to support them in their efforts to improve nutrient use efficiency while safeguarding crop production.**

To support our growers in Tasmania, we have improved the way we apply nitrogen retention coatings like Green Urea NV® and eNpower®, as well as trace elements, to our fertiliser products.

Over the past 18 months, IPF has invested more than $1.6 million into upgrading its Tasmanian distribution sites with state-of-the-art liquid coating technology.

IPF General Manager Tasmania, Nick Saunders, said the upgrades enable Tasmanian customers to access the latest in Enhanced Efficiency Fertilisers (EEFs), which have been scientifically proven to reduce nitrogen loss to the environment.

"IPF's upgraded liquid coating system allows for coating of nitrogen with Green Urea NV® and eNpower® onsite, right before it is dispatched to customers," Nick said.

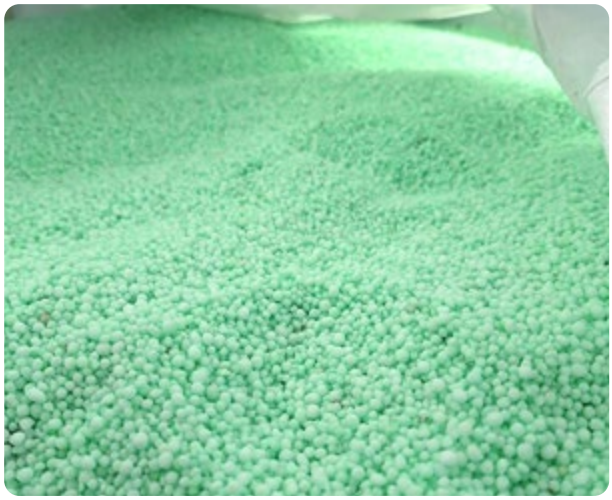
"This replaces the manual handling of coating in granular form with an automated process that evenly sprays EEFs on every granule through a comprehensive coating and tossing technique.

"It means we can optimise coating rates and existing formulations and deliver a more reliable product. It also allows for a uniform coating of a number of trace elements to ensure farmers have the ability to tailor nutrients to their crops and pasture needs."

The equipment is fully installed across all of IPF's major Tasmanian distribution sites at Scottsdale, Devonport, Longford and Circular Head.

With this equipment, IPF has significantly boosted output capacity at Scottsdale from 120 tonnes per hour, to 200 tonnes an hour, allowing it to serve more customers at once with improved truck turnaround times.

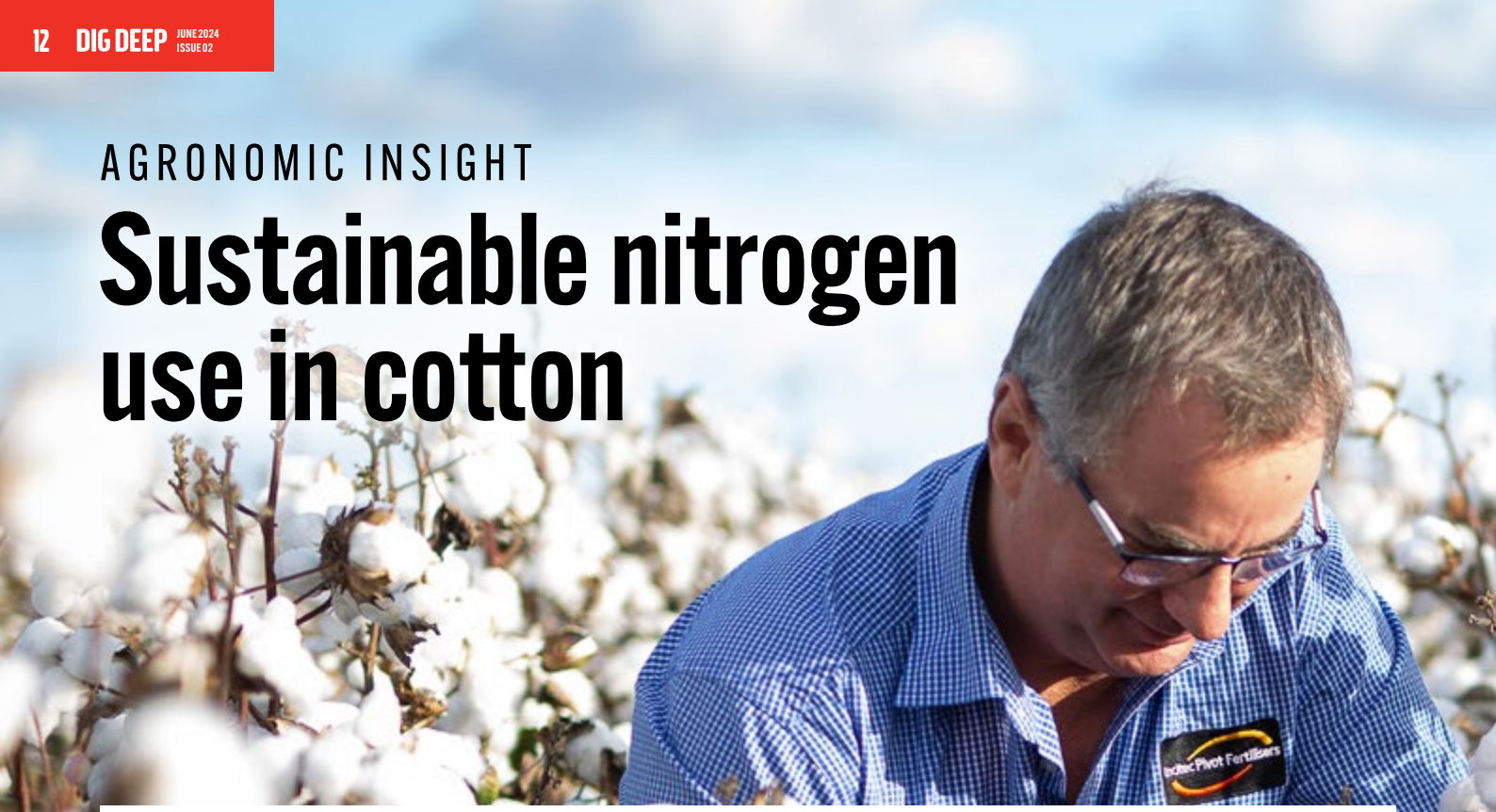
Liquid application line, Circular Head Distribution Centre.



Green Urea NV®

AGRONOMIC INSIGHT

# Sustainable nitrogen use in cotton



**Nitrogen (N) is essential for plant growth, but nitrogen fertiliser also accounts for about 70% of on-farm cotton greenhouse gas (GHG) emissions. Reducing the amount of N used to grow a kilogram of cotton is essential to reducing GHGs, and there is certainly scope for more relevant rates of N to be applied at no cost to production.**

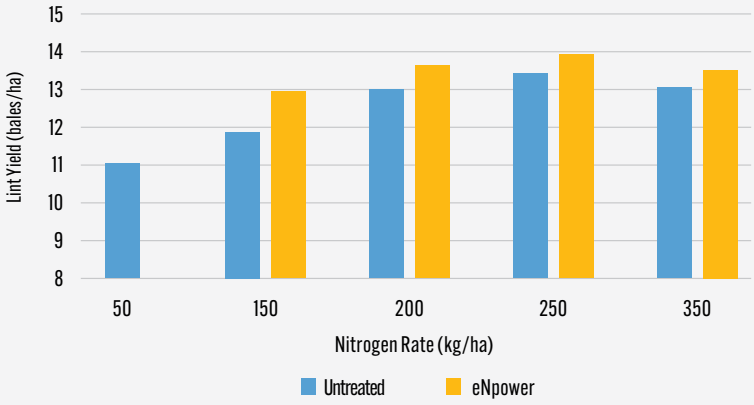
Since the Australian cotton industry became the first Australian agricultural industry to independently assess its environmental impacts in 1991, it has remained focused on continuously improving its sustainability.

The Fourth Environmental Assessment of the Australian Cotton Industry – an independent assessment of the environmental performance of Australia's cotton industry – found that grower sentiment has changed with an increasing focus on carbon and emissions.

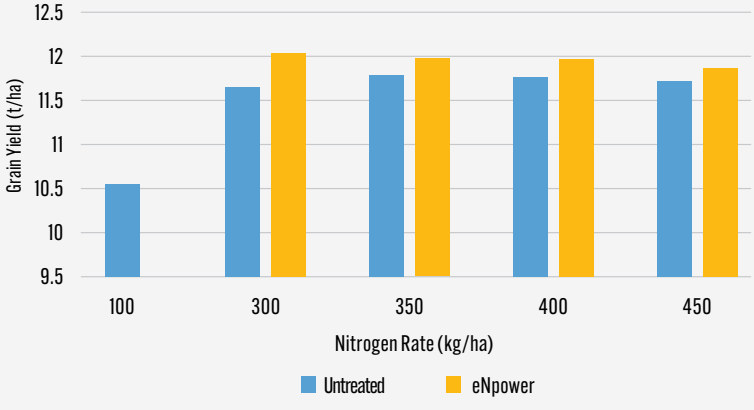
At IPF, we're here to help cotton growers improve productivity, protect their N investment, and reduce GHGs through Enhanced Efficiency Fertilisers (EEFs) like eNpower® and Green Urea NV®.

Our agronomic advice supports the responsible use of N through the 4Rs of nutrient management – right product, right rate, right time, right place.

**Cotton lint yields in response to increasing N rate and treatment with eNpower**




**Maize grain yields in response to increasing N rate and treatment with eNpower**



IPF Director of Agronomy & Ideation Jan Edwards with IPF Technical Agronomist, Bede O'Mara.

**Research backs EEF benefits**

Growers and agronomists understand that under-fertilising with N or other nutrients will reduce their profitability and want to ensure crop yields are not limited by nutrient deficiencies.

However, implementing non-limiting N strategies can lead to high or excessive rates of applied N when inefficiencies and loss factors are not properly accounted for or understood.

Research has shown that over-application of N can lead to lower nitrogen use efficiency (NUE) and significant losses of N as GHGs (Grace et al 2016).

High rates of N in combination with N applications early in the fallow can produce significant N losses through denitrification. In flood furrow irrigation on heavy vertosol soils, the first couple of irrigations is when most N loss occurs.

To demonstrate how EEFs like eNpower® can protect the N investment made by growers, IPF conducted a field study in 2022 to measure the yield benefit of using pre-plant N treated with eNpower® nitrification inhibitor (NI) in cotton and maize production.

Yield results from both cotton and maize sites show that yield can be maintained with a reduction of 50 kg/ha N when treated with eNpower®.

This aligns with recent research that indicates substantial scope to improve fertiliser nitrogen use efficiency (fNUE) and reduce N losses (nitrous oxide ($N_2O$) and di-nitrogen ($N_2$)) in cotton without any impact on lint yield, by adjusting N fertiliser application rates in combination with the use of the nitrification inhibitor DMP, such as eNpower® (Scheer et al, 2022).

**Measure to manage**

Pre-plant soil sampling is a critical first step in ensuring growers use relevant rates of N, and our Nutrient Advantage Laboratory provides independent soil analytical services in Australia.

Interpretation of soil sampling results with NA Pro software will calculate appropriate yield based N rates and the pre-plant component can be eNpower® treated.

Once the crop is up, petiole and leaf testing is an effective way to monitor the crop and refine how much N you might need for in-crop application.

For in-crop N application, using Green Urea NV® will minimise nitrogen volatilisation and boost available N for the crop.

**Top tip**

EEFs are designed for below or above-ground use.

- eNpower® protects N sources that are applied below the soil surface from denitrification and leaching.
- Green Urea NV® protects surface applied urea from volatilisation losses.

EEFs are easily incorporated into fertiliser programs. IPF N based products such as Urea, MAP, DAP and the Granulock® compound range of products can be supplied treated with eNpower®.

Growers and agronomists are encouraged to start including EEFs in their programs to establish the benefits for their production systems.

Supporting the responsible use of nitrogen fertiliser, IPF continues to invest in the research and development of N recommendation guidelines, new products and technologies backed by locally generated scientific data.

Scan QR code to read more


The 2024 Townsville Fire team.

Ray Gofton, Courtney Woods, Paul Rylewski.

## SUPPORTING OUR COMMUNITIES

# Fire Up Townsville

**The Townsville Fire is the most successful professional female sporting team of any discipline in the northern half of Australia. It holds four minor premierships, four Women's National Basketball League (WNBL) Championships and finished top of the WNBL table for the past two years, despite going down to the Perth Lynx in the semi finals in March this year.**

IPF has been a key partner of the Townsville Fire (the Fire) since 2020, supporting the successful regional team as it has gone from strength to strength on and off the court.

The Townsville Fire is involved in community initiatives through the Fire Foundation, including school and youth engagement programs, community camps and the Fire Academy which works to develop local talent beyond the basketball court.

IPF's Queensland Regional Operations Manager, Ray Gofton, said IPF was proud to be involved with such a successful team.

"It's a community-minded organisation, and its focus on diversity, youth engagement and pride for the Townsville region makes it a natural fit for IPF to support," he said.

IPF's partnership includes IPF logos and branding on Fire uniforms and courtside at The Fire Pit, the Fire's state-of-the-art venue at the Townsville Entertainment Centre.

IPF is also collaborating with the Townsville Fire to develop and deliver a range of community events focused on youth engagement and diversity.


The Fire Pit - Townsville Entertainment Centre.

For the first time, IPF also sponsored an individual player in 2024, Courtney Woods.

Courtney is a talented guard, who joined the Fire in 2020 and averaged an impressive 13.4 points, 4.5 rebounds, 2.5 assists and 1.5 steals each game last season.

"We're delighted to see that Courtney recently announced she had signed on for another two years with the Fire. She had such an impressive season last year, achieving multiple MVP awards and winning the National WNBL Community Award," Ray said.

"We look forward to continuing our support and seeing Courtney and the Fire in action in the 2024/25 season."

PRECISION AGRICULTURE

# Know more to grow more

**Precision Agriculture (PA) is a leading provider of variable rate farming solutions, helping drive a more advanced understanding and management of paddocks for Australian growers. With its innovative geo-spatial information system Soli, PA collects, curates and interprets spatial soils data, and provides nutrient mapping and spatial application solutions for agronomists, consultants and farmers.**

For cotton growers John and Cath Merrylees, the intensive soil sampling they conducted recently through Precision Agriculture revealed results previously missed by traditional sampling methods.

Growing 1,000 hectares of cotton and running around 4,500 ewes and a winter cereal cropping program at Carrathool in New South Wales, the Merrylees wanted to pinpoint any soil issues that may have occurred as a consequence of recent landforming work in a paddock.

They wanted to establish how much topsoil and nutrient had been shifted during the landforming process, knowing that testing was the best way to combat variability and potential losses in years to come.

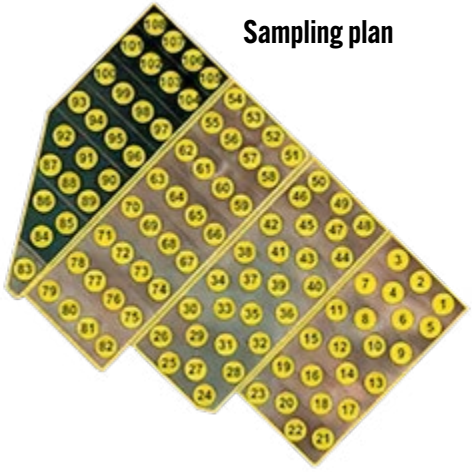
"The results showed a buildup of phosphorus and soil acidity that we didn't realise we had. This hadn't been picked up in previous soil surveys," John said.

The intensity of the PA sampling provided a holistic view of each paddock, identified constraints across each and highlighted variability undetected through traditional soil sampling.

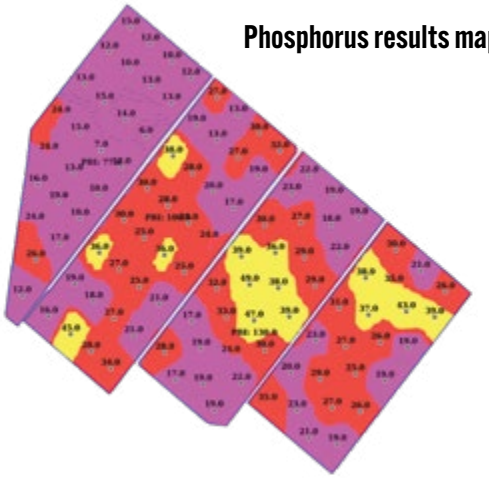
Knowing what inputs were needed, took the guesswork out of fertiliser application for the Merrylees, and they were able to have confidence that they were only applying phosphorus where it was needed most.

Following the initial trial paddock, the Merrylees continued on to topsoil sample other areas of their farm, as well as conduct electro-magnetic survey for zone management and Deep N sampling. They plan to continue this until the entire farm is complete, at which point they plan to return and sample on a five yearly basis.

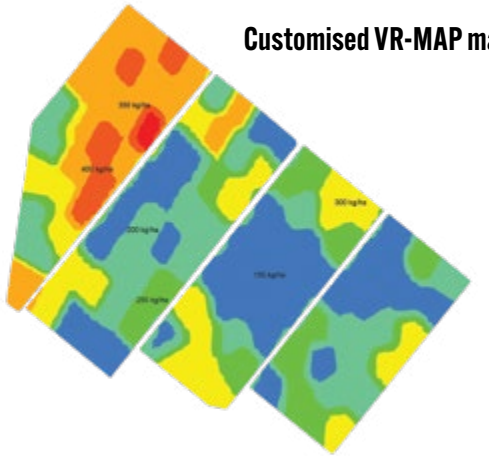
Since 2020, IPF's Nutrient Advantage Laboratory has been the exclusive supplier of laboratory services to Precision Agriculture. This partnership not only provides Precision Agriculture customers with quality, timely and accurate laboratory services, but supports the development of novel soil testing products and services.



Sampling plan



Phosphorus results map



Customised VR-MAP map


Incitec Pivot Fertilisers