RiskWi$e EP – April 2026 (Part 2)

Nitrogen is shaping up as one of the more important—and more difficult—decisions this season.

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Urea prices are high, supply is tight, and there's still some uncertainty around what will be available and when. Under normal circumstances, that might push most businesses towards a more cautious approach.

But this year isn't quite typical.

The summer rainfall has done more than just improve soil moisture—it's also driven nitrogen mineralisation. In a number of paddocks, particularly across lower rainfall zones, that has left soils in a better position than many would have expected at the start of the season. In some cases, there may already be enough nitrogen in the system to support crops close to their water-limited yield potential.

Other paddocks are starting from a very different place and will still require additional nitrogen to achieve their most profitable outcome.

This raises a practical question for 2026: Where are the real opportunities to match nitrogen supply with crop demand—and where are we unlikely to see a return?

This article looks at how to work through that question using paddock information, recent soil testing, and a more deliberate approach to nitrogen decisions.

What has summer rainfall done to nitrogen supply?

One of the less visible impacts of the summer rainfall has been on nitrogen supply. When soils are moist and warm, microbial activity increases. As microbes break down organic matter, nitrogen is released into plant-available forms. This process, known as mineralisation, can contribute a meaningful amount of nitrogen to the system before a crop is even sown.

The conditions over the past couple of months have been well suited to this:

- rainfall through late summer and early autumn
- combined with relatively warm soil temperatures

Together, these have likely increased the amount of mineral nitrogen available in many paddocks.

For some soils, particularly in lower rainfall environments where summer mineralisation is often limited, this can represent a significant shift in starting nitrogen levels compared to recent years.

But it won't be the same everywhere

While mineralisation is likely to have increased nitrogen supply this season, it won't be consistent across paddocks.

The amount of nitrogen released depends on:

- soil type and organic matter levels
- how well moisture has been retained
- previous crop and residue levels
- and the presence of soil constraints

As a result, some paddocks may now be relatively well supplied with nitrogen, while others may still be relying on fertiliser to meet crop demand.

Why this matters this year

In a season where fertiliser is expensive and supply is uncertain, this change in starting position is important. Some crops may already have access to enough nitrogen to support moderate yield targets, without the need for large upfront applications. Others will still require additional nitrogen to reach their most profitable potential. The challenge is identifying where the soil is already doing more of the work and where it isn't.

What the soil tests are telling us

To better understand how this is playing out on the ground, we've been sampling a series of focus paddocks over the past few weeks. These paddocks have been monitored over several years, with samples taken from the same locations each season—typically targeting zones with different historical productivity.

Three consistent themes are emerging from this year's results.

1. There is large variability within paddocks

One of the clearest observations is just how much nitrogen levels can vary across the same paddock. In most cases, differences of around 100 kg/ha of N (0–60 cm) between the highest and lowest zones are common.

Just as importantly, where that nitrogen sits doesn't always align with production. In some paddocks, higher nitrogen levels are sitting in poorer performing areas where constraints (e.g. subsoil issues) have limited crop growth over time, resulting in nitrogen building up in the system.

At the same time, higher producing zones often show lower nitrogen levels, reflecting greater removal by previous crops.

We are also observing that generally, paddocks following lentils in 2025 show higher N levels (although not excessively higher) compared to those following cereals.

The takeaway is simple: Nitrogen supply is not uniform and blanket fertiliser strategies are likely to miss both risks and opportunities.

2. Past nitrogen decisions are still influencing this season

Results from the N bank trials are reinforcing something that has been building over several seasons: nitrogen applied in previous years doesn't just disappear.

In treatments where higher N rates have been applied over time, soil tests are still showing elevated nitrogen levels in March 2026. This is particularly relevant for growers who have been targeting higher yield systems and applying higher nitrogen rates to support that.

In those situations there is a strong likelihood that residual nitrogen is still present in the system. Some paddocks may already be carrying part of this year's nitrogen requirement.

3. There may be more nitrogen deeper in the profile than expected

The third observation is around nitrogen sitting below the standard sampling depth. While many soil tests across the region focus on the 0–60 cm profile, our deeper sampling is showing that there can be significant amounts of nitrogen sitting between 60 cm and 100 cm.

There are a couple of likely drivers:

- recent rainfall events moving nitrogen down the profile
- accumulation over time where uptake has been limited

However, access to this nitrogen is not guaranteed. In many soils—particularly in the lower rainfall zone, deeper layers often coincide with chemical or physical constraints which can restrict root growth. Crops may only access this nitrogen if seasonal conditions are favourable and moisture allows roots to explore deeper.

Why this matters for 2026

Taken together, these results point to a shift in how nitrogen supply needs to be thought about this season.

- Some paddocks may already be well supplied
- Some zones within paddocks may be oversupplied
- Others may still be clearly deficient
- And some nitrogen may only become available if the season allows it

In other words, the starting point is more variable, and in some cases higher, than many would assume.

That creates both opportunity (where nitrogen is already present) and risk (where availability or access is uncertain). Total N is important, availability and timing matter just as much.

Setting a realistic yield target

Before getting too deep into nitrogen rates or return on investment, it's worth stepping back to the starting point:

What yield are we actually aiming for this season?

The answer this year isn't straightforward.

On one hand, summer rainfall has improved soil moisture, and many paddocks are holding more plant available water than we've seen since 2022, which is providing a buffer if conditions turn dry during the growing season.

On the other, the likelihood of a developing El Niño is increasing the chance of a drier finish.

So we're sitting between two competing signals:

- stored moisture supporting higher yield potential
- seasonal outlook increasing downside risk

Given that, a reasonable starting point for many situations may be planning around long-term average yields, but allowing for lower yields on poorer soil types and more upside on soils that have plant available water holding capacity.

Linking yield to nitrogen requirement

Once a yield target is set, estimating nitrogen requirement becomes more straightforward.

As a rule of thumb:

- wheat requires around 40 kg N per tonne of grain
- barley around 35 kg N/t
- canola around 80 kg N/t

So for a 2 t/ha wheat crop, total nitrogen requirement is roughly 80 kg N/ha.

The next step is working out how much of that is already available.

What's already in the system?

From earlier sections, we know nitrogen supply this year may be higher than expected due to:

- summer mineralisation
- residual nitrogen from previous seasons
- and starter fertiliser inputs

A simple example might look like:

- Soil nitrogen (0–60 cm): ~50 kg N/ha
- Expected mineralisation: ~15 kg N/ha *(noting this could increase with further rainfall)*
- Starter fertiliser (e.g. 50 kg/ha DAP): ~9 kg N/ha

That gives a total of ~74 kg N/ha already in the system, which is almost enough to support a 2 t/ha wheat crop without additional fertiliser.

Where the decision becomes more difficult

The challenge isn't calculating how much nitrogen is required. It's deciding:

How much additional nitrogen is worth applying to chase higher yield potential?

This is where the season becomes more complex.

- Yield potential may be higher than recent years
- But fertiliser costs are significantly higher
- And seasonal risk is still present

In previous seasons, the decision might have been to apply nitrogen to chase water-limited yield potential. This year, that approach carries more financial risk.

When higher yield isn't always more profitable

With the increase in urea prices, the return on each dollar invested in nitrogen has changed. That means pushing for maximum yield doesn't automatically lead to maximum profit.

In some cases slightly lower yield targets, supported by existing nitrogen, may deliver a more reliable financial outcome, particularly where nitrogen is already present in the system and seasonal conditions are uncertain.

Using tools to support the decision

To help work through this, tools such as the RiskWi$e nitrogen decision spreadsheet (developed with SARDI's Peter Hayman) can be useful. N FGFST V3 - Home

These allow growers to:

- test different yield targets
- adjust nitrogen inputs
- and explore how changes in price and response affect profitability

Importantly, they don't provide a single "right" answer. But they do help make the trade-offs clearer.

This season is less about chasing the highest possible yield, and more about aligning three things:

- realistic yield targets
- existing nitrogen supply
- the cost and risk of additional fertiliser

In many cases, the most profitable outcome may sit below the water-limited yield potential.

The key is understanding where that point lies for each paddock—and making decisions that still hold up if the season turns against you.

How nitrogen risk differs across the region

One of the important considerations this season is that nitrogen decisions don't carry the same level of risk across all environments. What works in one part of EP may not translate directly to another.

Lower rainfall zones (Upper EP): decisions are largely upfront

Across much of Upper EP, nitrogen strategy is shaped as much by logistics and environment as it is by agronomy. Larger programs, fewer reliable rainfall events and limited opportunities to apply nitrogen later in the season all mean that most nitrogen decisions are effectively made early.

There may still be opportunities to apply additional N if the season turns favourable—but these tend to be less frequent, more opportunistic and harder to execute across large areas. That puts more weight on getting the early settings right.

In this environment soil nitrogen and mineralisation become especially important because they may represent a significant portion of the total N supply.

It also reinforces the value of setting a realistic yield target early and matching nitrogen inputs to that target.

In many cases this year, that may mean:

- targeting moderate yields (e.g. ~2 t/ha for wheat)
- supported by existing soil nitrogen
- rather than pushing hard for higher yields upfront

A more conservative, well-supported N program may prove more reliable than a higher input strategy that relies on everything going right.

Medium rainfall zones: more flexibility, but the same principles apply

In medium rainfall areas, the situation is a little different. Yield potential is generally higher, crops are more likely to require additional nitrogen to reach that potential and there are typically more opportunities to apply N during the season.

More frequent rainfall events improve the chances of incorporating applied nitrogen and provide greater flexibility to respond as the season develops. That flexibility is valuable. It allows growers to hold some nitrogen back, reassess conditions and apply additional N if yield potential improves.

But higher potential doesn't remove the need for discipline

Even with that flexibility, the core principles still apply.

- Yield targets still need to be realistic
- Nitrogen requirements still need to be calculated
- And costs still need to be considered

What has changed this year is the economics. With higher urea prices the return on each unit of nitrogen is lower than in previous seasons, which means:

The most profitable nitrogen rate may be lower than what has been applied historically.

Even in higher rainfall zones, chasing maximum yield may not deliver the best financial outcome, particularly if grain prices remain moderate and seasonal risk persists.

Across the region, the approach may differ, but the underlying thinking is consistent.

- In lower rainfall zones decisions are made early, with limited ability to adjust
- In medium rainfall zones there is more flexibility, but still a need to manage cost and risk

In both cases, the goal is not to maximise yield at any cost. It's to match nitrogen investment to the level of confidence in the season. This year, that is likely to mean:

- more deliberate yield targets
- greater reliance on existing soil nitrogen
- and more careful consideration of where additional fertiliser will deliver a return

Key takeaways for 2026

Nitrogen supply is likely higher than recent years due to summer rainfall and mineralisation, but it is highly variable across paddocks and zones.

Some paddocks may already have enough N for moderate yields (~2 t/ha wheat), while others will still require additional fertiliser.

Yield potential is improved by stored soil moisture, but a developing El Niño increases the risk of a drier finish, so avoid overcommitting early.

Higher urea prices mean lower return on investment, so chasing maximum yield may not be the most profitable strategy this year.

Match nitrogen investment to confidence in the season, using soil testing and realistic yield targets to guide where fertiliser will deliver the best return.

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