Putting fertiliser rates to the profitability test

How Tambellup grower Neil Letter used Laconik to investigate fertiliser performance across his farm and make more informed investment decisions.



Putting his own paddocks to the test

For Tambellup grower Neil Letter, getting the best return from fertiliser meant understanding whether his family's established application rates were making the most of their 6,000 hectare mixed farming operation.

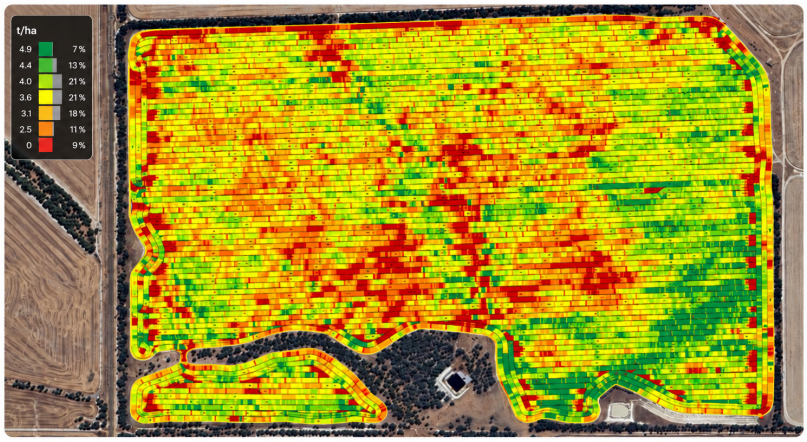
Working with his brothers in Western Australia's Great Southern, Neil had traditionally relied on soil testing, agronomic advice and experience to guide fertiliser decisions. However, he wanted to put those decisions to the test using research that reflected his own farming operation.

> A lot of trial data comes from small plots on one soil type, whereas running trials across our own paddocks takes into account the different soils and our management history, so we can have more confidence in the results and the decisions we make from them," he said.

Yield variability across a single paddock

A 2025 wheat yield map showing how productivity can vary within the same paddock.

This within-paddock variation helped explain why Neil Letter wanted trial data that better reflected his own soils, management and conditions.



From trial design to results

During 2025, Neil worked with Laconik to establish a series of urea and monoammonium phosphate (MAP) fertiliser trials, comparing crop responses and estimated financial returns under his own farming conditions.

The technology integrated with the family's existing machinery, allowing treatments to be applied during normal paddock operations. Laconik's technical support helped get the trials established, despite Neil's limited experience with variable rate technology.

There was also no lengthy wait for the findings. Neil received preliminary results soon after individual paddocks were harvested, providing timely information on how the treatments had performed.

THE ON-FARM TRIALS

6
trials across wheat and canola

63
replications across the trial program

Urea and MAP
rates investigated

Existing machinery
used for trial implementation

Results during harvest
as paddocks were completed

Different responses, different financial returns

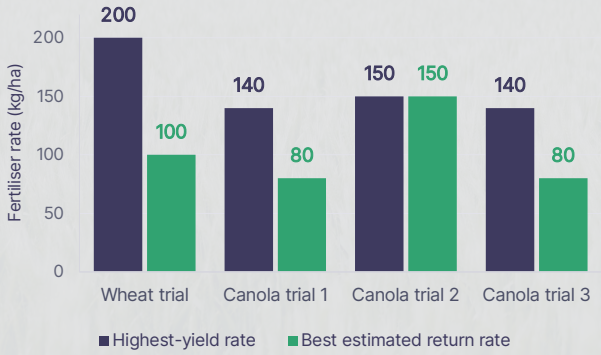
The 2025 trials revealed the fertiliser rate producing the highest yield wasn't necessarily the one delivering the best financial outcome.

Urea Trials

The greatest nitrogen response occurred on newer cropping country, where canola yield increased by 1.03t/ha to reach 3.16t/ha at 150kg/ha urea. This rate also delivered the strongest estimated financial return.

In contrast, two longer-managed canola paddocks achieved almost identical yields at 80kg/ha and 140kg/ha, with the lower rate delivering the better estimated return in both cases.

Urea trials: highest yield and best return did not always occur at the same rate

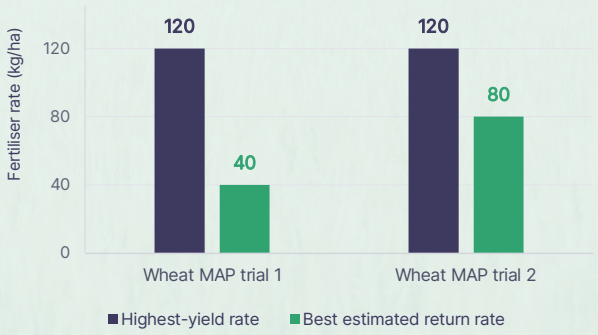


MAP Trials

In both wheat paddocks, increasing MAP rates improved yields, but the highest application rates did not deliver the best financial returns.

In one trial, yield rose from 3.38t/ha without MAP to 3.92t/ha at 120kg/ha, however 40kg/ha provided the best return after fertiliser costs. The second trial followed a similar pattern, with the highest yield of 5.30t/ha achieved at 120kg/ha, but the best financial return at 80kg/ha.

MAP trials: lower rates delivered the strongest estimated return



Research that changes decisions

The findings influenced the Neil's 2026 fertiliser program. Rather than increasing rates across the board, he maintained similar phosphorus applications while directing more nitrogen towards paddocks where the trials demonstrated stronger responses.

"The results reflect our own management and paddock history, so we're making decisions based on what's actually happening on our farm rather than relying entirely on trial data from somewhere else," he said.

"It's more about the peace of mind, knowing we're getting close to the full potential out of our paddocks and putting our fertiliser where it's going to deliver the best return."

For growers, Neil's experience demonstrates how on-farm evidence can reduce uncertainty around management decisions. For agricultural manufacturers, it shows how replicated paddock-scale research can generate credible data on treatment performance that is relevant to growers and their purchasing decisions.

See the full results

Scan the QR code to read Neil's complete case study, explore the trial results in greater detail and discover what Laconik could reveal about your own farming or research operations.