



**GROWER
GROUP
ALLIANCE**
Together we grow



RiskWi\$e Case Study

Nitrogen Management and Adaptation on Clint Pitman's Farm

Introduction

Clint has taken a hands-on, adaptive approach to nitrogen management through on-farm trials, variety selection, and equipment changes. His strategy is built on real-time observations, flexibility with inputs, and a clear understanding of how seasonal conditions, crop response, and soil health interact.

As he continues to fine-tune his system, Clint sees nitrogen as a critical lever for yield, especially in good seasons, but also recognises the need for balance across other nutrients like phosphorus (P) and potassium (K).

Nitrogen Trials and Application

On-farm Trial Insights

Clint has run nitrogen trials, testing different rates and management strategies. He found that applying an extra 50 litres of Flexi-N consistently boosted yields by 0.5–1.0 t/ha. In contrast, the use of a stubble cruncher, intended to reduce nitrogen tie-up, had little to no benefit and in some cases a negative impact at harvest.

The control (no intervention) yielded similarly to the stubble-crunched plots, confirming that increased nitrogen, rather than stubble management, delivered the best result in his system.

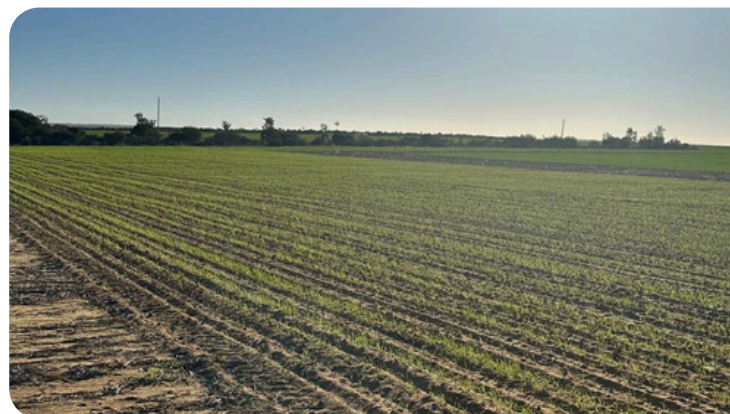
Current Application Rates

This season, Clint applied approximately 100 units of nitrogen to barley and 105 units to canola. He adjusted rates based on paddock conditions, crop appearance, and available moisture. He is currently topping up his wheat with nitrogen to lift protein levels. Clint emphasises that early nitrogen application, especially in barley, is key to achieving yield potential, and delaying it can compromise efficiency and return.

Challenges and Adjustments

Managing Nitrogen Tie-Up

Clint continues to face issues with nitrogen tie-up in paddocks with high stubble loads, which reduce the availability of nitrogen to crops. While stubble crunching was trialled as a possible solution, it didn't provide a benefit in his situation.



Frost and Equipment Adaptation

Despite favourable early-season conditions and strong inputs, frost events significantly impacted yield in some areas. In response, Clint is exploring changes to seeding systems; transitioning from a DBS tyne machine to a disc seeder to better handle stubble and conserve moisture. He is also trialling longer coleoptile wheat varieties (such as Calibre and Genie) to improve establishment under variable surface conditions.

Crop Rotation and Variety Selection

Flexible Rotations

Clint's rotation typically includes canola, wheat, and barley. He has moved away from legumes due to past challenges with soil structure and herbicide residues. His variety selection is guided by performance under varying nitrogen levels, especially in dry seasons, where managing input costs becomes even more critical.

Adaptive Nitrogen Strategy

Clint considers himself a flexible nitrogen manager. He has N strips across his paddocks and is seeing strong responses at around 123 units of nitrogen, which encourages him to apply more in seasons with strong yield potential. However, he acknowledges he is still on "the upwards slide" of learning how far to push inputs and where diminishing returns may begin.

Nitrogen Use Efficiency and Future Considerations

Balancing N with Other Nutrients

As Clint increases nitrogen rates, he is beginning to see limitations due to insufficient phosphorus and potassium. He recognises the need to rebalance his nutrient program to support higher yields and nitrogen efficiency. A holistic nutrient strategy is becoming a greater focus as he fine-tunes his system.

Research Needs

Clint sees a gap in research around nitrogen use efficiency across different crop varieties, particularly under lower input conditions that are more reflective of on-farm realities. He's interested in understanding which varieties perform best with less nitrogen, helping farmers make better-informed decisions that balance cost and performance.



General Observations and Recommendations

Soil Health Matters

Clint stresses the role of organic matter and soil structure in effective nitrogen management. Stubble and organic materials tie up nitrogen, which means soil biology and management practices need to work in harmony with inputs to ensure nutrients are available when crops need them.

Need for Targeted Research

He recommends more research on nitrogen efficiency and varietal performance under low-input systems. This would better support farmers trying to balance profitability, risk, and environmental outcomes, especially in variable or marginal seasons.

Conclusion

Clint's approach to nitrogen management is practical, adaptive, and informed by direct experience. His trials show that additional nitrogen delivers strong returns in his system, but also highlight the importance of managing other nutrients and maintaining soil health.

He continues to evolve his equipment and variety choices in response to seasonal challenges like frost and nitrogen tie-up. Looking forward, Clint is keen to see more research that reflects real-world farm conditions, helping growers fine-tune inputs for both yield and efficiency.