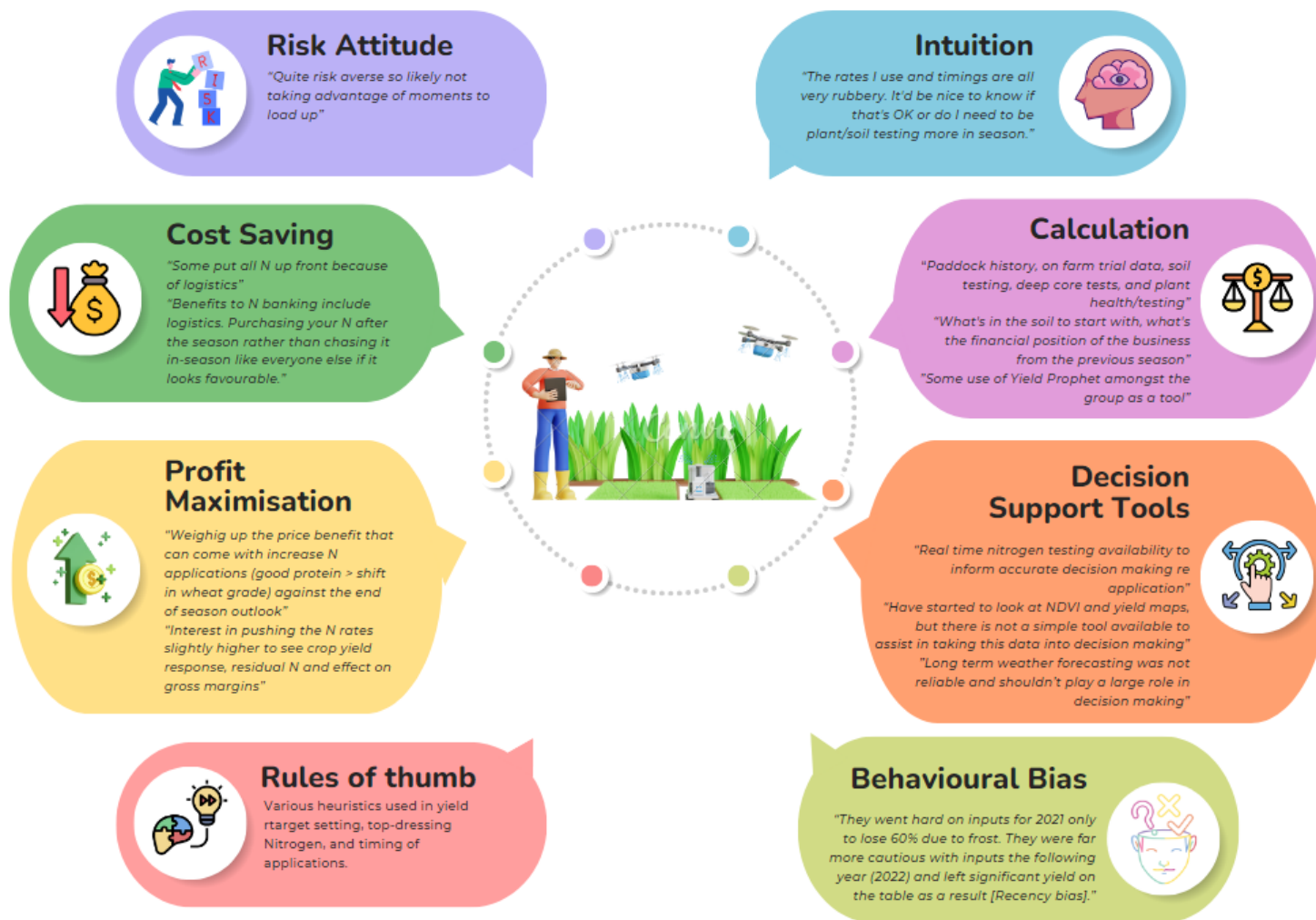


## A Glimpse into Decision-Making Among Grain Growers in Merredin, Western Australia

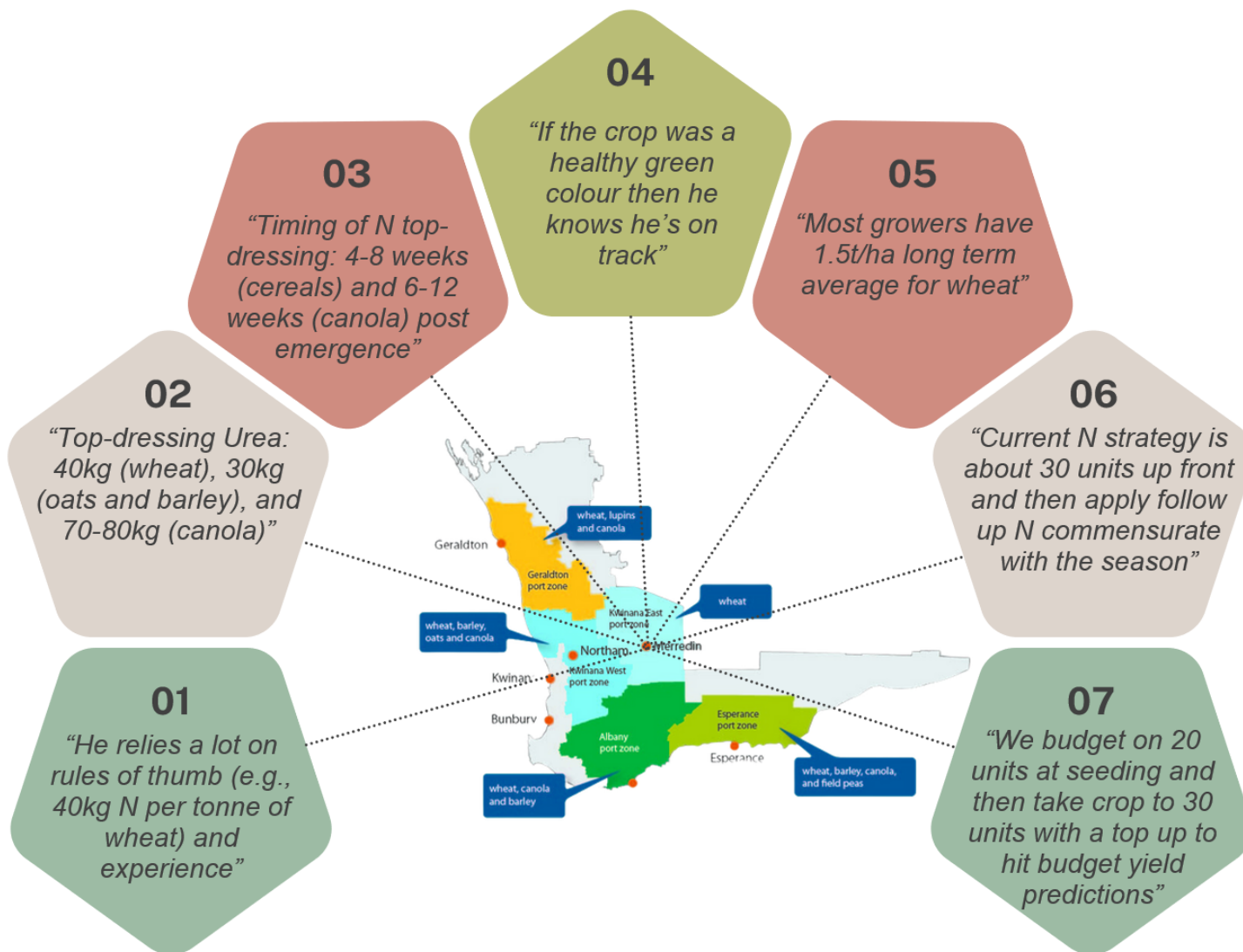
**Introduction.** Merredin, located in Western Australia's Wheatbelt, is a key hub for the region's grain industry, with about 40% of WA's wheat production coming from within the 100km radius around Merredin (Shire of Merredin, 2024). The region is known for specialising in wheat production for the export markets in Asia and the Middle East. The area's semi-arid climate and reliance on rain-fed agriculture make farming highly sensitive to climate variability. Understanding farmer decision-making is crucial in this context, as it influences resource management, adaptation to changing conditions, and adoption of technologies. Insights into these decisions can support strategies to enhance productivity, sustainability, and resilience in Merredin's grain sector.

**Method.** To understand farmer decision-making processes, a focus group discussion and brief farmer survey were conducted among grain growers from Merredin & Districts Farm Improvement Group (MADFIG) in August 2024. The discussion was facilitated by the Western Australian No-Tillage Farmers Association (WANTFA) Grower Group Alliance. Proceedings of the discussion were analysed using thematic analysis.

**Decision-making process.** Farmers in Merredin employ a variety of approaches in their decision-making processes. While intuition plays a role, there is a significant use of analytical calculations. The application of analytics extends to various aspects, including paddock assessments, soil testing, and plant health evaluations. To enhance the accuracy of their decisions, some farmers utilise decision support tools, such as Yield Prophet, designed to encapsulate the complexity of agricultural decision-making while remaining user-friendly. Notwithstanding these advancements, decision-making can be influenced by cognitive biases, particularly recency bias, which may hinder the ability to achieve optimal yields and enhanced profitability.



# Rules of Thumb Identified in Nitrogen Management



**Use of Rules-of-thumb.** Merredin farmers employ various rules of thumb to facilitate decision-making processes regarding yield targets, nitrogen top-dressing, and the timing of fertiliser applications. Their primary objective is to maximise profits while minimising costs. Risk attitudes significantly influence the determination of input levels and budget allocation for their paddocks. Collectively, these strategies contribute to informed decision-making tailored to the specific context of their agricultural operations.

**Research gaps.** Growers also identified research gaps to improve their nitrogen decisions including the need for a framework that can be used to support decision-making on timing, amount, soil moisture and N reserves. The need for long-term reliable climate forecasts was highlighted, together with real-time nitrogen testing, soil moisture probes, and more data analysis from trials on farm.

### References

Department of Primary Industries and Regional Development. (2024). Grain production in Western Australia map. Agriculture and Food Division. Government of Western Australia.  
Shire of Merredin. (2024). About Merredin. WA Local Government Association.

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Source of map: Department of Primary Industries and Regional Development, 2024

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