Sowing seeds for continuous development of a **software suite** and **community of practice** in crop analytics

Australian National University

AAGI Analytics for the Australian Grains Industry

Adelaide University

AAGIverse Project

Gusti Rais[1], Emi Tanaka[1], Julian Taylor[2]

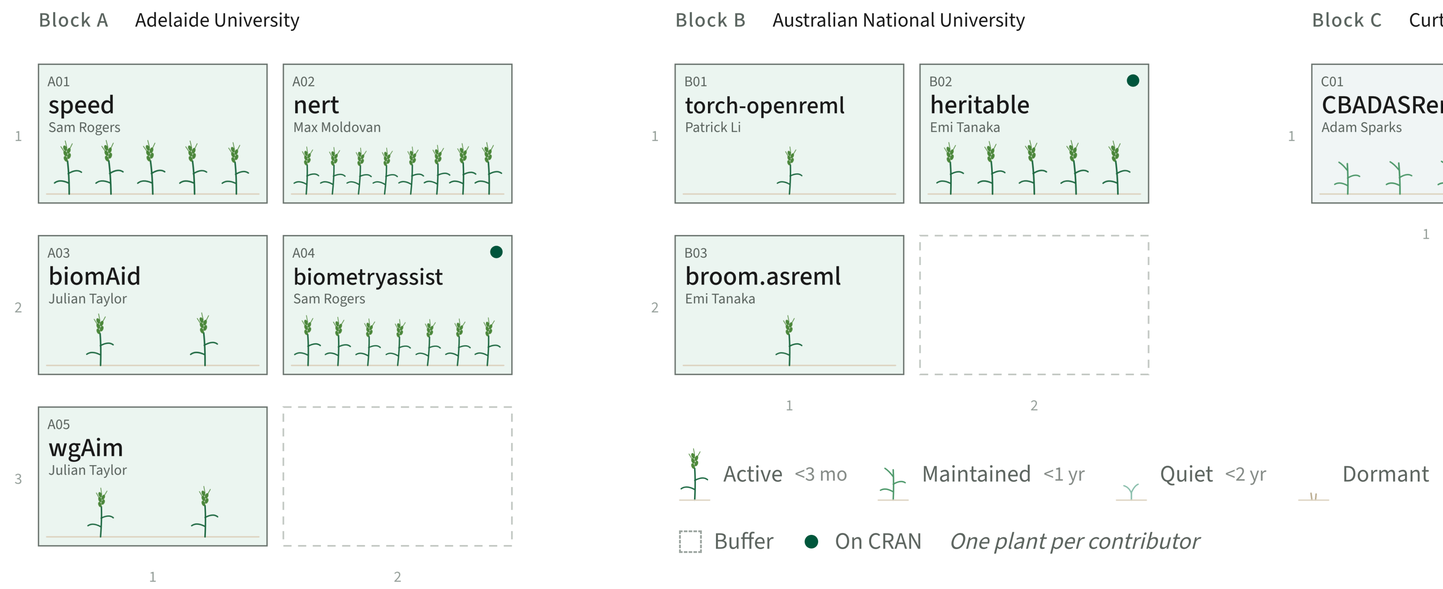
[1] Australian National University | [2] Adelaide University

Background

Context: AAGI, a GRDC partnership across multiple universities and agencies, combines diverse analytical expertise to support decision-making in the grains sector.

Challenges

1. AAGI's node-based structure can create **silos, limiting the exchange of analytical practices** across the network.
2. **Desk drawer code** — developed in isolation, potentially unvalidated, and rarely shared — can result in **duplication of effort** and **inconsistent quality assurance.**
3. Scripts **may not follow established software design practices** to become a reliable, reusable, and user-friendly software.



A current view of software packages collected.

Methods

1. **Engaging the community:** Through informal fireside chats and community events, we connect with analysts across the nodes to learn how they work and gather the code they rely on, from single functions to full workflows.
2. **Refining with users:** Contributions are improved iteratively with feedback from the researchers who will use them, so the tools meet real research needs and stay useful as those needs evolve.
3. **Learning from successful systems:** The collected packages will be developed as a coherent system, guided by successful ecosystems such as the tidyverse, whose packages share a design philosophy, grammar and data structures, so learning one makes the next easier (Wickham et al., 2019).

Impact

AAGIverse will enable more reliable, efficient and consistent analysis across the AAGI network.

Reliable
Well-tested, documented packages replace unvalidated desk drawer code.

Efficient
Analysts reuse shared tools instead of rewriting the same code at each node.

Consistent
Common tools and practices give comparable results across the network.

Reference: Wickham H, Averick M, Bryan J, et al. (2019). Welcome to the tidyverse. *Journal of Open Source Software* 4(43), 1686.



Some examples of Python and R packages created by AAGI researchers

Aims

1. Community drive to collate code and knowledge bases to increase accessibility and contributions.
2. Create or refactor existing code base into a unified software packages to support crop analytics.
3. Advocate and foster shared learning of best practices.

Looking Ahead

We envision **AAGIverse** as a trusted resource for researchers and practitioners undertaking data analysis in grains research, offering a growing suite of well-tested packages, shared guidelines and software resources, supported by a self-sustaining community.

Scan the QR code to explore our shared codebase, learn more about AAGIverse, and submit your own codebase.

Get Involved!

Contact:
GustiFaturahman.Rais@anu.edu.au

GRDC Grains Research & Development Corporation | Adelaide University | Curtin University | The University of Queensland Australia

The support of the Grains Research and Development Corporation (GRDC) provided through the Analytics for the Australian Grains Industry (AAGI) project is acknowledged.