

INVESTIGATING LONG TERM WEATHER OUTLOOKS: AGROMETEOROLOGY AUSTRALIA CLIMATE OUTLOOK

Can long-lead climate indices support decision-making in variable seasons, to support earlier risk management?

KEY MESSAGES

- **Monthly AgroMeteorology reports were shared with Riverine Plains Weather farmer co-operators between March and November 2025, to support early whole-farm season planning.**
- **Growers said they used the report most for the climate summary, indices and yield maps to compare nearby locations and check how the district was tracking.**
- **When the AgroMeteorology outlook tended drier in April, several growers thought it matched what later unfolded, but most said confidence in the forecasts would build only with regular use over time and more seasons to compare.**
- **Feedback from farmers suggested shorter, clearer summaries would improve usability. The north east and south east region split within the report confused farms near the boundary, so it's recommended to cross-check with other sources, including the BoM forecast and Agriculture Victoria Fast Break newsletter, then ground-truth with local gauges and recent rainfall, to refine decisions as the forecast period approaches.**

BACKGROUND

Australia has the highest crop-yield variability of any major grain-producing nation, making early decisions about inputs and yields target particularly risky. Traditional climate drivers such as the Southern Oscillation Index (SOI) and Indian Ocean Dipole (IOD) often do not give a clear signal until May or June, after many paddocks are already sown.

Long-range weather forecasting service provider, AgroMeteorology Australia (AgroMeteorology), has recently introduced new long-lead and now-time indices. These two indices are promoted as being able to pick up early climate signals that can develop into drier or wetter patterns from as early as February. If these indices are proven as reliable, they could provide advance warning of challenging seasonal conditions up to 12 months ahead, giving farmers greater planning opportunities.

In 2025, Riverine Plains subscribed to AgroMeteorology's, monthly long-range forecast reports. These were also shared with a select group of Riverine Plains Weather Station farmer co-operators for their feedback.

THE PROBLEM IN THIS REGION

A big challenge for Riverine Plains region growers is the sowing window forecast "blind spot", where key calls on logistics and expensive inputs often have to be locked in early, before there is a clear climate signal for the growing season. If the season turns drier, the farmer incurs costs through reduced paddock performance (yield) and increased budget pressure.

Agrometeorology is a commercially available long-term weather forecasting product that Riverine Plains is testing with local farmers over a two year period.

HOW THE DEMONSTRATION UNFOLDED

We tested whether the AgroMeteorology Climate Outlook report could support Riverine Plains growers in setting a whole-farm season plan earlier, instead of just using it as a forecast.

From April to November 2025, we shared the monthly report with a small group of growers hosting Riverine Plains weather stations, and encouraged them to use it alongside the Bureau of Meteorology (BoM) outlook when thinking about input risk and logistics.

After harvest, we reviewed which sections they used most, such as the climate summary, indices and maps, and interviewed growers about what they understood and trusted, and whether the report influenced any plans, timing or spend. We also asked what would make the report easier to use, then compared this with how they used the BoM outlook.

BENEFITS

Some growers said the Agrometeorology report gave them a different heads-up to that provided by BoM. When the April outlook leaned drier, several felt it matched what later played out, better than the BoM outlook at the time.

The main benefit was not any single forecast, but the regular monthly check-ins, which helped growers build a practical feel for the season and pay closer attention to stored soil moisture before spending on nitrogen. Growers also valued the report's yield maps to compare nearby locations and check whether their farm was tracking with the wider district.

TRADE-OFFS AND CHALLENGES

For most of the growers interviewed, the Agrometeorology report did not drive clear plan changes: it mainly acted as a heads-up, not a rule. One long-term subscriber still questioned how dependable it is across seasons, noting it can line up well some years and miss in others, and no forecast is right every time. Several growers said confidence would build with regular use over more seasons.

The biggest barrier was readability. Long paragraphs and technical language meant some growers did not use the report as often as they could have. The north east and south east region split also confused farms close to the boundary.

Confidence was another challenge. Some growers prefer multi-model products because when several forecasts point the same way, it is easier to act. For example, Agriculture Victoria's Fast Break newsletter summarises recent climate drivers and brings together three-month model guidance on oceans, rainfall and temperature for Victoria, providing greater confidence in the information.

AGROMETEOROLOGY VS BOM

BoM and Agrometeorology forecasts can show different signals because they summarise the climate in different ways. BoM reports model probabilities and presents maps such as the chance of above-median rainfall, with notes on confidence and key climate drivers, and it updates these outlooks regularly. Agrometeorology places more weight on weather patterns and uses indices, similar past seasons and a crop model to turn the climate signal into soil moisture and yield ranking guidance, backed by a written interpretation for cropping.

CLARIFYING BOM TERMINOLOGY

- Neutral does not mean "average rainfall". It means there is no strong signal, so the chances are roughly one-third each of drier, near-median or wetter conditions. In practice, it means plan for any outcome.
- Likely to be above average (60% to 80% chance) means that out of 100 model runs, about 60 to 80 were wetter than the median, leaving a 20% to 40% chance of the opposite outcome.

THE PRACTICAL TAKEAWAYS

The Agrometeorology report mostly worked as a heads-up, rather than a trigger for specific plan changes. Shorter summaries and less technical language would make the reports easier for growers to read and use.

BoM and Agrometeorology add value in different ways. BoM shows the probabilities, while Agrometeorology puts the climate patterns into a cropping context, providing soil moisture and yield guidance.

Confidence improves with regular use over time, more seasons to compare, and when a few sources tell the same story. The biggest benefit was the regular check-ins that help build a practical feel for the season, rather than relying on one forecast.

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