

# Australian Grassland Association research symposium 2023: pasture legumes for sustainable productive systems

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Pasture legumes play a key role in productive and sustainable livestock production systems. Pasture legumes produce feed for livestock that generally has high nutritive value and symbiotic biological nitrogen (N) fixation is a major source of N for pasture-based livestock production. However, there are challenges to find pasture legumes species and cultivars that are productive and persistent in the broad range of climates, soil types and management systems across Australia. The Australian Grassland Association (AGA) research symposium 'Pasture legumes for sustainable productive systems' addressed these challenges. The symposium was held at the University of Western Australia in Perth during 4–6 July 2023. The symposium covered themes on the use of legume and mixed pastures in changing and variable climates, developing new pasture legumes and future directions for pasture legume research. This Special Issue of *Crop & Pasture Science* presents the key scientific papers from the symposium.

The important role that pasture legumes have played in the pastoral industries of New Zealand was reviewed by Moot (2023), who highlighted that understanding the genotype, environment and management interactions was key to successful integration of legume on farms. The interactions between genotypes and the environment were further explored in relation to flowering time of important pasture legumes (Haling *et al.* 2023; Goward *et al.* 2023).

Exploring the production and persistence of pasture legumes under variable climates was a focus of the symposium. Stutz *et al.* (2023) evaluated the role of summer active legumes to support livestock finishing systems in southern Australia and finding that lucerne was the most reliable option on suitable soil types, but some alternative species were worthy of further investigation. Smith *et al.* (2023) provided a comprehensive review of the potential role for strawberry clover. Hardseededness breakdown patterns (Newell *et al.* 2023) and persistence of pasture legumes (Hayes *et al.* 2023) were explored in south-eastern Australia where again the importance of understanding the phenology and seed characteristics was highlighted.

Pasture legume improvement was an important theme of the symposium. The development of sterile leucaena to reduce weed risk was reported by Real *et al.* (2023). An approach to overcome physiological seed dormancy in annual legumes to assist with speed breeding of pastures was described (Peck *et al.* 2023). Badgery *et al.* (2023) reviewed the role that pasture legumes and herbs can have in reducing enteric methane emissions from ruminant animals, highlighting an important future research area in pasture-based livestock production.

This was the sixth in a series of AGA research symposia following on from the 'Australian Legume Symposium' (2012), 'Perennial Grasses in Pasture Production Systems' (2014), 'Livestock Productivity from Pastures' (2017), 'Soil Constraints to Pasture Productivity' (2019), and 'Resilience in the face of change – Pastures for the Future' (2021). The AGA was established to facilitate the ongoing improvement and development of pasture-based industries. This is being done by providing a forum which brings together a wide range of industry stakeholders in order to:

- Facilitate interaction, exchange ideas and facilitate the presentation, peer review and publication of recent research;

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- Provide an opportunity for all interested stakeholders to review and contribute to the advancement of pasture-based industries through science; and
- Consider and discuss the state of the pasture industry and research needed to meet present and future challenges.

The AGA symposium was put together by a dedicated committee of Dr Rowan Smith (President), Dr Keith Pembleton (Vice President), Stuart Kemp (Treasurer), Dr Beth Penrose (Secretary), Carol Harris, Dr Kevin Reed, Dr Phillip Nichols, Clinton Revell, Daniel Kidd and Dr Brendan Cullen.

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**Conflicts of interest.** The author declares no conflicts of interest.

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