

Foreword

This Special Issue is a collection of papers that report on research conducted in the last 7 years, largely undertaken within a **Future Farm Industries Cooperative Research Centre's** (FFI CRC) program that operated under the banner 'EverCrop'. This component of the FFI CRC portfolio of research and development focused on crop-livestock systems with the broad objective of exploring the potential for wider use of perennial plants in the mixed farming systems of southern Australia.

The motivation for the research undertaken by FFI CRC was to explore the potential offered by a perennial component and the ability of perennials to deliver commercial advantages to farmers as well as environmental benefits to their farming systems. Research activities undertaken as part of EverCrop provided a focus on farming systems where cropping is the key economic driver as part of a mixed crop/livestock system. In Australia, such systems have historically been dominated by annual crops and pastures and EverCrop was instigated to challenge the status quo and scope the potential for diversification using perennials. The Grains Research and Development Corporation (GRDC) was an important partner in FFI CRC and the development of the EverCrop Program allowed the objectives of FFI CRC and GRDC to be closely aligned around the issue of system diversification.

The EverCrop project was faced with the ambitious challenge to deliver specific and relevant options involving the use of perennial plant systems for southern Australia, a very large area with substantial environmental and climatic variation linked to significant variation in farm systems and practices. Research to comprehensively explore the potential offered by perennials for the full suite of recognised agro-ecological zones was beyond the resources available to the EverCrop Program. A compromise emerged in which detailed biophysical research was focussed in three zones chosen because of their contrasting characteristics. The focus regions were the uniform rainfall zone of southern NSW, the Mallee region in South Australia and Victoria and the Northern Agricultural Region in Western Australia. Detailed data reported in this series of papers relates to

experiments conducted in one or other of these target regions. Where possible data collected in the key experimental regions has been incorporated into models and the use of these models has allowed wider interpretation of the site and region specific data. A number of the papers in the issue have used modelling creatively to allow wider interpretation of collected data.

The contrasting regional settings provided diverse circumstances for the application of perennial plant technologies (species, plant forms and system). At each of the 3 regional locations a multi-disciplinary team was assembled to both identify opportunities and challenges with novel options or the expanded use of known perennial and to undertake research that would overcome constraints to commercial application of prospective technologies and systems. The project teams adopted a strongly participatory approach to their work, consulting widely with producers and the wider industry in identifying the regional research focus. Subsequently, the physical research was undertaken on farmers' properties and local individuals and groups were engaged to review results and their implications.

This collection of papers in **Crop & Pasture Science** provides an insight into the range of perennial options that might become more widely applied. A widened scope for use of perennials (species, plant form and systems) is put into context in the comprehensive review paper by Robertson and Revell (2014, this issue). The extensive knowledge within the project team of current annual based farming systems has been critical in underpinning the designing of system variants involving the use of perennial plants. Another contributing success factor for this initiative has been the research approach adopted. Llewellyn *et al.* (2014, this issue) have provided important insights into the design and management of farming systems research using multi-disciplinary teams of scientists and this issue documents many aspects of the resulting research output.

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