

How the seasons change: the influence of environment on mungbean yields

Kylie Wenham¹

Marisa Collins²

¹ The University of Queensland

² LaTrobe University

In Australia, the inclusion of pulses in crop sequences as break crops within cereal based cropping systems has increased in popularity through additional yield benefits provided as a result of water, nitrogen and disease dynamics. Mungbeans (*Vigna radiata* L. Wilczek) are the only summer pulse grown in Australia with >95% of crops planted in northern New South Wales and Queensland. Grain yield for mungbeans has been historically variable and considered ‘high-risk’ for growers due to the factors dictating crop performance and yield being poorly understood, providing an ongoing challenge for the industry. Over the past decade, the total area of production of mungbeans has increased in response to rising commodity prices and the opportunity to utilise mungbeans as a break crop or a short-duration crop in double cropping situations, highlighting the need to better understand the physiology of the crop and how to grow it ‘better’. The relationship between biomass accumulation, flowering and yield components as influenced by seasonal variability and water dynamics is crucial for understanding what is driving grain yields in mungbean crops in the northern region and how risk can be managed. Field trials across spring and summer seasons aim to examine how these key drivers may influence biomass accumulation and understand those factors critical to maximising flower number and most importantly grain number and overall yield. Understanding the fundamental physiological relationships that determine yields in mungbean have the potential to increase overall yields both in the paddock through better understanding of environment and agronomic management, as well in breeding programs that will gain clear targets for improving yields in upcoming varieties.