

## Managing barnyard grass through crop competition: The role of row spacing and crop density

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**Summary** Barnyard grass (*Echinochloa* spp.) are the most problematic weeds in summer cropping systems in Australia. Increased reliance on herbicides for the fallow management of barnyard grass has resulted in the evolution of glyphosate-resistant populations which are now widespread across the northern cropping region. While herbicides continue to be relied on, non-chemical control strategies are needed to complement these herbicide treatments and ensure the effective management of barnyard grass. Field trials at Narrabri during summer 2017–2018, quantified the effect of mung bean and sorghum plant densities and row spacings on the biomass and seed production of barnyard grass. Once crop plant seedlings had emerged, young barnyard grass seedlings were transplanted at a density of 5 plants m<sup>-2</sup> into designated areas within each plot. An equivalent sized plot area

was maintained weed-free. The biomass of barnyard grass was reduced by up to 88% with narrow row spacing in both sorghum (50 cm) and mung bean (25 cm) crops. The better weed suppression observed in narrow row spacings was a result of the early crop canopy closure and shading of barnyard grass plants. When planted at narrow row spacing (25 cm), the increased density (30 plants m<sup>-2</sup>) of mung bean resulted in the maximum biomass reduction (24%) of barnyard grass. This study has highlighted that crop competition through reducing row spacing and altering the crop density is an effective control strategy to control barnyard grass that should be considered in integrated weed management in summer crops.

**Keywords** *Echinochloa colona*, *Echinochloa crus-galli*, crop competition, sowing rate, cultural weed control, mung beans, sorghum.