

Spatial survey to assess legume adoption in Queensland

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Introduction

Pasture legumes are the best long-term management option for increasing productivity and profitability from pasture-based production systems for large areas of Queensland. Previous reviews have concluded that successful legume adoption rates are low, particularly in some key biogeographic zones; however, there have been few studies that have quantified actual legume adoption rates at the regional scale and no survey at the Queensland scale. A spatial survey is being conducted to quantify the land area with pasture legumes across Queensland. This survey will provide information on where legumes have naturalised or been established by deliberate sowing across Queensland, and where there are limited amounts of pasture legumes. The results from the roadside survey will be combined with a spatial analysis of where legumes are suited and economic analysis to quantify the potential value of more widespread adoption of pasture legumes to the beef industry as part of the Queensland Pastures Resilience Program (QPRP).

Methods

A survey is being conducted to spatially locate the distribution of legumes across Queensland. Measurements are taken at approximately 10-kilometre intervals along a given route, with road reserves and commercial paddocks measured separately. Roadside measurements are taken in areas that are undisturbed and represent the natural landscape (i.e. avoiding the disturbed areas). At each location; legume presence/absence, top 3 legumes by yield, legume density/composition rating, top 3 grass species by yield, grass competition, grazing pressure, pasture dieback symptoms, understorey vegetation and crown cover are recorded.

Results

Initial results are derived from the Burnett, southern Darling Downs and Granite Belt regions of Queensland. An initial summary of results from the first round of legume adoption surveys is shown in

Table 2~~Error! Reference source not found.~~, focusing on the presence and absence of legumes and observed pasture dieback symptoms.

Table 2: Summary of spatial survey results, with presence and absence of legumes categorised by land use and columns showing pasture dieback observations.

Legume present/absent	Land Use	Dieback status			Total
		Clear symptoms	No visible symptoms	Potential symptoms	
Absent					265
	Crop (grain/fodder)	-	7	-	7
	Grazing	8	136	13	157
	Roadside	7	67	27	101
Present					102
	Grazing	1	28	10	39
	Roadside	8	47	8	63
Total		24	285	58	367

Discussion and conclusion

Of the 367 surveys, 38.5% had legumes present; however, roadside data accounted for 61.8% of sites where legumes were present. Legumes were observed at only 21% of grazing locations. These initial results support the initial hypothesis that current successful adoption of legumes is low, and the opportunity to sow legumes to improve pasture performance is significant.

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