Dual-purpose crops fill the winter feed-gap in prime lamb systems in Northern Tablelands NSW and reduce flystrike incidence

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In the summer rainfall zone of northern NSW, lambing generally occurs in late winter-spring following the winter feed-gap, but predisposes lambs to a higher risk of flystrike and subsequent lost production. Dual-purpose crops (DPC) have been utilised in the uniform rainfall zone in southern NSW to assist in filling the winter feed-gap and allowing for autumn lambing systems. Agricultural systems modelling has demonstrated the potential value of DPC in the summer rainfall zone (Bell *et al.* 2015; Lilley *et al.* 2015) but limited farmer experience and knowledge of DPC in this zone has prevented adoption. We aimed to compare an autumn (May) and spring (early-Sep) lambing system, with and without the integration of DPC. We hypothesised that DPC would fill the feed-gap in autumn lambing systems, and flystrike incidence would be lower in autumn compared to spring born lambs.

Preliminary feedbase modelling using the MLA Feed Demand Calculator (FDC) was carried out for a prime lamb enterprise (12.5 DSE/ha) in the Northern Tablelands, NSW (Armidale). The feedbase consisted of either 100% phalaris/subterranean clover pasture or 75% pasture with 25% dual-purpose wheat, grazed May to August. All simulations were run under standard and poor (bottom 20% of year) seasonal conditions. A 25% and 50% increase in DSE was also investigated in both lambing systems under standard year conditions. Forage growth and quality of the pasture were based on values set in the FDC, whilst these parameters were calculated in APSIM (Holzworth *et al.* 2014) for dual-purpose wheat and manually set. Flystrike incidence was simulated (Wardhaugh *et al.* 2007) for autumn and spring lambing systems for two sale dates based on a lamb growth rate of 0.20 or 0.25 kg/d (45 kg target liveweight).

In an autumn lambing system, under standard and poor conditions, integrating DPC for grazing in winter provided 180-200 kg DM/ha more feed and no deficit in freshly grown supply compared to a pasture only system (Table 1; only standard year presented). In an autumn lambing system, integrating DPC allowed stocking rates to be increased up to 50%, with no deficit in freshly grown supply, whilst the pasture only system could not support the same increase (Table 1). Simulated flystrike incidence and associated prevention/treatment costs were markedly reduced in the autumn lambing system (2-9% at risk; $0.50-1.13/hd) compared to the late winter-spring system (31-50% at risk; $1.60-2.00/hd); the cost was lower with faster lamb growth rates.

	DSE/ha	Minimum biomass (kg DM/ha)	Freshly grown deficit (kg DM/ha.year)
Autumn lambing			
Pasture	12.5	614	190
Pasture + DPC	12.5	798	0
Pasture	18.8	360	780
Pasture + DPC	18.8	660	0
Spring lambing			
Pasture	12.5	725	0
Pasture + DPC	12.5	946	0
Pasture	18.8	510	160
Pasture + DPC	18.8	721	0

Table 1. Total and freshly grown forage supply in autumn and spring lambing systems stocked at varying stocking rates (DSE/ha) with a pasture or pasture + dual-purpose crops feedbase under standard year conditions.

Results from these modelling activities demonstrate the potential role of DPC in this region to help fill the winter feed-gap and allow for autumn lambing and a safe increase in stocking rates, with autumn lambing reducing the risk of flystrike in post-weaned lambs compared with spring lambing. Further whole-farm systems modelling activities will aim to quantify the benefits of DPC integration in this region in filling the winter feed gap.

References

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This project is part of the MLA Livestock Productivity Partnership.