

# THE EFFECT OF GLYPHOSATE TREATMENT OF ANNUAL PASTURE ON *IN VIVO* DIGESTIBILITY, FEED INTAKE, AND LIVELWEIGHT CHANGE IN MERINO WETHERS

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Chemical curing of senescent pastures with glyphosate prior to anthesis has been shown to conserve high levels of soluble carbohydrates and *in vitro* DM digestibility well into summer and can be regarded as a potential method for improving the feeding value of dead summer pasture (Armstrong et al. 1990). This experiment was designed to compare digestibility, voluntary feed intake and liveweight change in wethers fed either glyphosate-treated or untreated herbage from 2 harvest times.

Pasture, containing mainly annual ryegrass (*Lolium rigidum*) and silver grass (*Vulpia bromoides*) was sprayed with glyphosate (180 g a.i./ha Roundup CT) 16 days before anthesis. Control and treated pasture were harvested 3 and 11 weeks after anthesis. Herbage from the first harvest was stored frozen (-20°C).

Forty Merino wethers (2-year-old) were individually penned and offered chaffed clover hay (*ad libitum*) for 21 days before being allocated to 4 dietary treatments ( $n=10$ ) on the basis of liveweight and prior feed intake. Diets consisted of either the treated or untreated herbage which was chaffed into 40-100 mm lengths and offered on an *ad libitum* basis over a 6-week period with water freely available. Herbage was analysed for soluble carbohydrate and nitrogen. Results are presented in Table 1.

**Table 1. Effect of glyphosate treatment of annual pasture on soluble carbohydrate (SC g/kg DM) and nitrogen (N%) in herbage, and *in vivo* digestibility (IVD%), dry matter intake (DMI g/day), digestible dry matter intake (DDMI g/day) and liveweight change (LWΔ g/day) in wethers**

	SC	% N	IVD	DMI	DDMI	LWΔ
<i>Harvest 1</i>						
Treated	128.3	1.23	58.9	953	553	+10
Untreated	82.8	0.91	53.2	503	264	-151
<i>Harvest 2</i>						
Treated	51.6	1.03	48.9	887	434	-25
Untreated	18.3	0.67	43.7	530	231	-135
s.e.d.		—	1.5	55	28	14

Treated pasture had higher SC and N at both harvest times, although absolute quantities were lower at the 2nd harvest. The DMI and IVD of treated herbage were significantly ( $P < 0.001$ ) higher than for untreated herbage at both harvest times. This resulted in 109% and 88% higher ( $P < 0.001$ ) DDMI at the first and second harvest respectively, and a substantial improvement ( $P < 0.001$ ) in liveweight change.

The results confirm that glyphosate treatment of annual pastures reduces the loss of feeding value and demonstrate that this is translated into improved liveweight gains at both harvest times. Despite some loss in feed value of treated herbage between the 1st and 2nd harvests, the benefit to animals grazing glyphosate treated pasture may possibly be extended further into summer by deferring grazing.

ARMSTRONG, R. D., SIMPSON, R. J. and PEARCE, G. R. (1990). *Proc. Aust. Soc. Anim. Prod.* **18**: 448.