

RESPONSE OF MULTIPLE BEARING EWES TO INFUSED GLUCOSE IN LATE PREGNANCY

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The survival and early growth of multiple born lambs is closely related to their birth weight. Lamb birth weight is closely correlated with glucose production (Barry and Manley 1985) and thus the provision of glucose or glucose precursors should influence the birth weight of multiple born lambs. Barry and Manley (1985) found that triplet bearing Booroola ewes infused abomasally with glucose did not have larger litter weights than non-infused ewes and they considered this was due to small maternal body size limiting foetal growth. The aim of our experiment was to examine the response, in litter weight and early milk production, to two levels of glucose in crossbred ewes whose basal ration was restricted.

Eighteen Border Leicester X Merino ewes (58.8 ± 0.9 (SE) kg at day 119) carrying two to five foetuses were provided with chaffed lucerne (N content 2.5%) at a restricted level (Table 1). Treatments from day 119 to day 145 of gestation were abomasally infused glucose (nil, 20 or 40% extra ME; average of 106 or 207 g/h.d) with or without sodium caseinate (12 g/MJ ME glucose). The infusion solution was 1.1 L/day of 0.5% disodium hydrogen orthophosphate buffer. When infusions ceased at day 145 ewes were fed additional lucerne to match the ME of the previous glucose infusions and from parturition they were fed an average of 1534 g lucerne/d. Ewes were condition scored (1, very lean through to 5, very fat) and weighed regularly. They were hand milked, after injection of 5 i.u. of oxytocin, one hour post-partum, and four hours apart one day and nine days post-partum.

Ewes provided with glucose gained more weight ($P < 0.01$) and were in better condition at parturition ($P < 0.05$) than the control ewes (Table 1). There were no other significant treatment effects and so results for the nil and plus sodium caseinate treatments were combined.

Table 1. Performance of control ewes and ewes fed an additional 20 or 40% extra ME as glucose from day 119 to 145 of gestation (mean \pm SE).

Treatment	Control		+ 20%		+ 40%	
Number of ewes	4		8		6	
Intake (g DM/d)	883		891		870	
Liveweight change d119-d145 (g/day)	41 \pm 18		139 \pm 14		217 \pm 24	
Condition score at parturition	1.5		1.9		2.1	
Litter weight at birth (kg)	8.2		8.1		9.6	
Colostrum 1 hour post-partum (g)	553		468		474	
Colostrum 1 day post-partum (g/24 hour)	1896		2124		1686	
Milk 9 days post-partum (g/24 hour)	1704		1896		1962	

The increase in ewe liveweight and negligible response in litter weight with additional glucose demonstrates the difficulty of increasing foetal growth in late pregnancy. Glucose partitioning in late pregnancy may depend on placental competence and extraction rather than glucose production.

REFERENCE

BARRY, T.N. and MANLEY, T.E. (1985). *Br. J. Nutr.* 54 : 521.

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