

Mating ewes on condensed tannin-containing forages increases ewe reproductive rate and reduces lamb mortality

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Introduction Action of condensed tannin (CT) reduces forage protein degradation in the rumen and increases the absorption of amino acids from the small intestine (Barry & McNabb 1999). This paper reports the effects of grazing ewes on two CT-containing forages during mating upon ewe reproductive rate and lamb mortality.

Materials and methods Mixed age Romney ewes grazed *L. corniculatus* (18-29 g CT/kg DM) or perennial ryegrass / white clover during mating (Expt 1), whilst in Expts 2, 3 and 4 ewes grazing low quality drought pasture during mating were fed 1.4 kg supplements of fresh willow (*Salix* sp 27-52 g CT/kg DM) or poplar (*Populus* sp 7-19 g CT/kg DM per day). Treatments were applied over a 70 day period to groups of 100 ewes, including two cycles of mating; groups were then joined and grazed on pasture until weaning.

Results Mating on *L. corniculatus* increased lambing percentage ($P<0.05$) and reduced lamb mortality ($P<0.05$; Table 1). Supplementation with willow and poplar during mating increased lambing percentage in two experiments ($P<0.05$) and reduced overall lamb mortality from 17.8 to 11.7% ($P<0.05$), with no interaction between treatment and years (Table 2).

Table 1 Mating on *Lotus corniculatus* and reproductive performance (Ramirez *et al.* 2005)

Experiment 1	Pasture	Lotus	P
Liveweight change (g/d)	-5	67	***
Lambing (%)	159	175	*
Lamb mortality (%)	22.9	11.7	*

Conclusions: Feeding CT-containing forages during mating and early pregnancy increased ewe reproductive rate and reduced lamb mortality. Further research is needed to confirm the effects on lamb mortality, using larger group sizes of ewes.

Table 2 Willow and poplar supplementation during mating on drought pastures (McWilliam *et al.*, 2005)

Experiment	Control	Supplement	SEM
(2; poplar supplementation)			
Liveweight change (g/d)	-82	-67	5.2
Lambing (%)	121	155	5.8
Lamb mortality (%) ¹	20.3	16.3	
(3; willow supplementation)			
Liveweight change (g/d)	-103	-86	4.3
Lambing (%)	131	148	6.9
Lamb mortality (%) ¹	17.3	12.1	
(4; willow supplementation)			
Liveweight change (g/d)	-147	-96	4.5
Lambing (%)	124	127	5.6
Lamb mortality (%) ¹	16.0	8.0	

¹ Corrected for birth rank and sex.

References

- Barry, T.N., & W.C. McNabb (1999). The Implications of condensed tannins on the Nutritive value of temperate forages fed to ruminants. *British Journal of Nutrition* 81, 263-272.
- McWilliam, E.L., T.N. Barry, N. Lopez-Villalobos, P.N. Cameron & P.D. Kemp (2005). The effects of willow (*Salix*) supplementation for 31 and 63 days on the reproductive performance of ewes grazing low quality drought pasture during mating. *Animal Feed Science and Technology*, 119, 87-106.
- Ramirez-Restrepo, C.A., Barry, T.N., Lopez-Villalobos, N., Kemp, P.D., Harvey, T.G. (2005). Use of *Lotus corniculatus* containing condensed tannins to increase reproductive efficiency in ewes. *Animal Feed Science and Technology* (In Press).