

EFFECTS OF COTTONSEED SUPPLEMENTATION ON BIRTHWEIGHTS
AND SURVIVAL OF LAMBS FROM A RANGE OF LITTER SIZES

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With the recognition that ewes carrying litters may respond to protein supplementation in the last trimester of pregnancy and also that protein availability may influence placental development in the second trimester (Hinch unpubl.), an experiment was designed to examine the effects of a cottonseed supplement on lamb birthweight and survival.

Three hundred, mixed-age Border Leicester x Merino ewes (40% heterozygous for the Booroola F gene) were single-sire joined with Poll Dorset or Siromt rams in February 1989. All ewes were trained to eat pellets (Millmaster Feeds, 75% cottonseed, 31.5% protein) prior to joining. Litter sizes were established by real time ultrasound at approximately 50 days of pregnancy and the ewes were then allocated to a supplemented or non-supplemented group. The groups were balanced for age, sire breed, ewe breed and litter size.

The supplemented ewes (S) were group fed with 80 g/head/day of cottonseed pellets during 50 to 100 days of pregnancy. The S group was then reallocated to groups fed according to litter size for the remainder of pregnancy; singles receiving 80 g/head/day, twins 150 and litters of three or more 200 g/head/day of supplement. All ewes were grazing on improved pastures and pasture availability at the time of lambing was >3000 kg DM/ha.

Table 1 Birthweight (kg)(s.e.) and % survival to 48 hours (n)

Feed	Littersize	1	2	3	4
Supplement	Birthwt	5.42(0.13)	4.37(0.06)	3.46(0.10)	2.52(0.12)
	Survival	92(24)	93(122)	78(39)	40(24)
No supplement	Birthwt	4.89(0.16)	4.14(0.08)	3.22(0.12)	2.35(0.23)
	Survival	87(15)	72(70)	71(27)	75(8)

There were significant effects of cottonseed supplementation on birthweight and survival of littersizes 1-3 ($P < 0.05$). Sire genotype and litter size also significantly influenced birthweights ($P < 0.001$, $P < 0.05$), the Dorset sired lambs being heavier. The increase in lamb survival of the S group for littersizes 1-3 was partially explained by birthweight changes but feeding effects remained after fitting birthweight in a maximum likelihood model.

These data indicate that a protein rich supplement may increase birthweight of lambs from a range of litter sizes. There also appears to be an associated increase in lamb survival. Further studies are required to determine the nutritional reasons for the response, the duration of feeding necessary to achieve these responses and whether separation of litter size groups to provide differential feeding is necessary.

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