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BIRTH MASS AND NEONATAL MORTALITY OF LAMBS AS AFFECTED BY LEVEL OF NUTRITION OF THE EWE

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OPSOMMING: GEBOORTEMASSA EN NEONATALE MORTALITEIT VAN LAMMERS SOOS BEINVLOED DEUR VOEDINGSPEIL VAN DIE OOI

Vyftig dragtige S.A. Vleismerino-ooie wat voor inseminasie gesinkroniseer was, is 6 weke voor lam onderwerp aan twee voedingspeile (Laag en Hoog). Die ooie met meerlinglammers het betekenisvol ($P < 0,01$) minder voer ingeneem per kg geboortemassa van die lammers as die ooie met enkelinge. Hierdie verskynsel was meer opvallend by die ooie wat op die lae voedingspeil (8,4 kg teenoor 12,8 kg) was. Voedingspeil het geen invloed gehad op die geboortemassa van enkeling lammers nie terwyl meerlinglammers van ooie op die hoë peil se geboortemassa betekenisvol ($P < 0,01$) hoër was as dié op die lae peil (3,91 kg teenoor 3,26 kg). Neonatale mortaliteit van enkeling en meerlinglammers afkomstig van ooie op die lae voedingspeil was 18,2% en 26,7% teenoor 6,7% en 10,0% van dié op die hoë voedingspeil ($P < 0,01$).

SUMMARY:

Fifty pregnant S.A. Mutton merino ewes, the mating of which had been synchronized, were allotted to two planes of nutrition six weeks prior to lambing. The ewes bearing multiple lambs consumed significantly ($P < 0,01$) less feed per kg birth mass of the lambs than the ewes with single lambs. This was more apparent in the ewes on the low plane of nutrition (8,4 kg compared to 12,8 kg). Level of nutrition had no effect on the birth mass of single lambs while the birth mass of multiple lambs from the ewes on the high plane of nutrition was significantly ($P < 0,01$) greater than those on the low plane (3,91 kg as against 3,26 kg). Neonatal mortality of single and multiple lambs from ewes on the low plane of nutrition was 18,2% and 26,7% compared with 6,7% and 10,0% from those on the high plane ($P < 0,01$).

It is widely accepted that the ewe requires a high level of nutrition during the last 6 weeks of pregnancy when the foetus is growing rapidly, and that inadequate prenatal nutrition exerts adverse effects on the ewe and the lamb (Alexander, 1968; Edey, 1969). Differences in lamb birth mass of up to 25% have been reported when ewes are subjected to a severely restricted feeding level (Russel, Doney & Reid, 1967). These effects are particularly marked in ewes bearing twins (Alexander, 1968). Increased neonatal mortality in ewes subjected to severe undernutrition during the late stages of pregnancy was reported by Edey (1969). However, overfeeding during late pregnancy tends to produce disproportionately large single lambs which results in a high incidence of dystocia (Forbes, 1969). This experiment was conducted to examine the effect of pre-partum feeding levels in ewes on the birth mass and neonatal mortality of their lambs.

Procedure

Fifty pregnant S.A. Mutton merino ewes were randomly allotted to two treatment groups (A and B) 7 weeks prior to lambing. The mating of the ewes had been synchronised by use of intravaginal progestagen-impregnated sponges. The ewes were housed in individual pens for a 7-day adaption period. During the last 6 weeks of pregnancy groups A and B were respectively fed 1 kg and 2 kg per 45 kg body mass of a pelleted ration. The ration consisted of 35% oat hay, 30% lucerne hay, 20% yellow maize meal, 10% oats and 5% blue lupins with a digestible crude protein and digestible nutrient content of 6,8% and 57,6% respectively. Standard statistical procedures, as described by Snedecor and Cochran (1967) were used to analyse the data.

Results and discussion

The mean feed intake per kg of lamb birth mass was significantly higher in those ewes which carried single lambs compared to those with multiple lambs ($P < 0,001$, Table 1). The ewes bearing multiple lambs, especially those in Group A, were therefore considerably more efficient as regards feed consumed per kg of lamb birth mass compared to those bearing single lambs. It appears therefore, that ewes will give birth to normal viable lambs, especially single lambs, without resorting to excessive feeding during late pregnancy. Whether this practise is feasible will depend on the occurrence of multiple lambing, the level of nutrition *pre partum* and neonatal management of the lamb. In addition to the lower birth mass of the multiple lambs compared with the singles ($P < 0,01$, Table 1), the neonatal mortality of both single and multiple lambs in group A, was significantly greater ($P < 0,01$) than that in Group B (Table 2). This phenomenon can be attributed to the restricted feeding of the ewes in Group A, the high occurrence of multiple lambing, and consequently

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Table 1

The effect of two planes of nutrition on mean feed intake by ewes per kg birth mass of lambs, and on mean birth mass of lambs

Plane of nutrition	Single/multiple lambs	Mean feed intake per kg birth mass of lambs (kg)	Mean birth mass of lambs (kg)
Group A (Low)	Single	$12,8 \pm 0,6^a$	$4,47 \pm 0,24^a$
	Multiple	$8,4 \pm 0,4^b$	$3,26 \pm 0,14^c$
Group B (High)	Single	$24,0 \pm 1,9^c$	$4,66 \pm 0,24^a$
	Multiple	$14,5 \pm 0,4^d$	$3,91 \pm 0,10^b$

a, b, c, d: Within each set of observations means having the same superscript are not significantly different from each other.

Table 2

The effect of two planes of nutrition on the percentage neonatal loss of the lambs

	Group A (Low)		Group B (High)	
	Single	Multiple	Single	Multiple
Number of ewes lambed	11	14	15	10
Number of lambs born	11	30	15	20
Number of lambs alive 24h after birth	9	22	14	18
Neonatal loss (%)	18,2	26,7	6,7	10,0

the significantly lower birth mass of the lambs. Similar results have been recorded by Thomson & Thomson (1949) and Schinckel & Short (1961).

The mean birth mass of the multiple, but not of the single lambs was significantly affected by the feeding level imposed on the ewes ($P < 0,01$, Table 1). This finding is consistent with that of Alexander (1968) and Edey (1969).

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