Effect of Supplementing Does, During the Last Trimester of Pregnancy and Lactation, on Birth Weights, Growth and Survival Rates of their Kids

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Worldwide kid mortality results in considerable economic losses and is one of the main factors adversely affecting goat production. Research has shown that most kid mortality occurs at birth and from birth to weaning (Otte and Chilonda 2002). This study was undertaken to evaluate the effects of providing supplements to does six weeks prior to and post parturition on kid birth weights and their subsequent survival and growth rates.

Boer and crossbred F3+ does (n=54) grazing improved pastures were divided into 2 groups in a cross over design. Group 1 received a soybean meal supplement equivalent to 0.5% of their group mean liveweight per day, for 6 weeks before the onset of kidding and for half of this group this supplementation continued for 8 weeks after parturition, while Group 2 was unsupplemented (Table 1). After kidding, half of the dams which had been receiving supplements continued to be supplemented while the other half stopped receiving supplements. Conversely, half of the dams which were not being supplemented prior to parturition started receiving the soybean meal (went into Group 1) while the other half continued without supplementation (Group 2).

The pre-partum dietary treatment had no effect on birth weights and growth rates ($p>0.05$), but the postpartum dietary treatments had a significant negative effect ($p<0.01$) on the post weaning growth rate of the kids (Table 1). The birth weight was significantly affected by the genotype ($p<0.05$) and the gender of the kid (females 3.5, males 3.9 kg; $p<0.01$) but was not influenced by litter size. The pre-weaning and post weaning growth rates were significantly affected by the sex of the kid (females 191, males 215 g/d; $p<0.05$). The post weaning growth rate of kids was significantly affected by the post partum dietary treatment of the does ($p<0.01$), their weaning weight ($p<0.05$) and the sex of the kids (females 143, males 122 g/day; $p<0.05$). The average weaning weight was 14.9 kg and the kids gained an extra 3.2 g/day for every kg of weaning weight. The preweaning mortality rate was higher for kids born from the unsupplemented does than for kids from the supplemented does (21% versus 13% respectively). More than 50% of these kids died from predation from foxes and eagles, although there were 3 kids that disappeared without trace.

Table 1. Effect of treatment on birth weight (kg) and pre and post-weaning growth rates of kids

Treatment		Birth weight		Growth rates (g/day)			
				Pre-weaning		Post-weaning	
Pre-partum	**Post partum**	**Mean**	**SE**	**Mean**	**SE**	**Mean**	**SE**
1 (supplemented)	1 (supplemented)	3.7	0.17	220	11.0	133	8.2
1 (supplemented)	2 (unsupplemented)	3.6	0.18	192	10.2	138	7.6
2 (unsupplemented)	1 (supplemented)	3.8	0.14	195	9.7	114	7.2
2 (unsupplemented)	2 (unsupplemented)	3.6	0.17	202	11.3	147	8.4

The results of the current study indicate that kid birth weight is less responsive to prepartum nutrition than lamb birth weight (Sahlu *et al.* 1995) possibly because pregnant does are able to mobilize nutrient reserves from their body tissues in order to supply adequate nutrition to the foetus (Sibanda *et al.* 1997). Although the dietary treatment in this study did not have any significant effect on the birth weight of the kids, supplementing the does 6 weeks prior to parturition and 6 weeks after parturition enhanced their survival ($p<0.05$). However, in order for production to be cost effective, supplements should only be given prepartum to undernourished does on poor quality pastures, and the bulk of the supplements should be reserved for does bearing multiple kids while does bearing single kids should be given just enough supplement to offset pregnancy toxemia.

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