THE EFFECT OF PHOSPHORUS DEFICIENT DIETS ON THE FOOD INTAKE OF EWES DURING PREGNANCY AND LACTATION

S.P.S.BUDHI and J.H.TERNOUTH

Previous studies with growing lambs have shown that the most significant effect of phosphorus (P) deficiency was a reduction in feed intake (Sevilla 1985). This experiment was designed to determine the effects of P deficiency in pregnant and lactating ewes.

Twenty-four 22 month-old pregnant maiden ewes (average weight 22.9 kg) were randomly allotted dietary P treatments containing very low(VL), low(L), moderate(M) and high(H) concentrations of P. The basal diet consisted of barley straw (25.43 g CP and 0.559 g P /kg DM) fed ad libitum with fixed quantities of molasses-urea mixture (260 g), 50 g wheat gluten and minerals. The P was provided as $Na_2HPO_4.12H_2O$. After lambing the quantity of supplements were increased by 25 %. Food intake was recorded daily for 10 weeks before and 10 weeks after lambing, liveweight fortnightly and jugular blood samples collected fortnightly for plasma inorganic P analysis. The concentrations of the P in the diets consumed by the ewes were 0.67, 1.01, 1.35 and 2.02 g /kg DM in diets VL, L, M and H respectively.

	VL	L	M	H	SE	Sig. of diff.
Daily dry matter intake (g /day)						
Before lambing	528	488	527	621	10.9	**
After lambing	621	682	612	791	30.3	**
Plasma inorganic P (mg /dl)						
Before lambing	4.45	4.52	4.25	5.32	0.22	*
After lambing	2.96	3.39	4.23	5.33	0.20	*

The table shows that ewes fed the high level of P in their diet had significantly higher levels of plasma inorganic P than the other three diets both before and after lambing. The lower plasma P concentrations were associated with 17.5 % lower levels of food intake both before and after lambing as previously found in growing lambs (Field et al. 1975; Sevilla 1985). Bass et al. (1981) found that during lactation, but not pregnancy, low P diets reduced the voluntary feed intake of beef heifers. It is not clear whether the differences during pregnancy between the two experiments is due to the actual P intakes of the animal species or their previous history. In our experiment the ewes were small and had low liveweights. The feed intakes of the ewes were higher after lambing than before.

There were no significant differences in either dry matter or organic matter digestibility during either pregnancy or lactation.

BASS,J.M, FISHWICK,G., HEMINGWAY,R.G., PARKINS,J.J. and RITCHIE,N.S. (1981). J.Agric.Sci. 97: 365.
FIELD, A.C., SUTTLE,N.F. and NISBET,D.I.(1975). J.Agric.Sci. 85: 435.
SEVILLA, C.C. (1985). Ph.D. Thesis. University of Queensland.

Department of Agriculture, University of Queensland, St. Lucia, Qld 4067.