

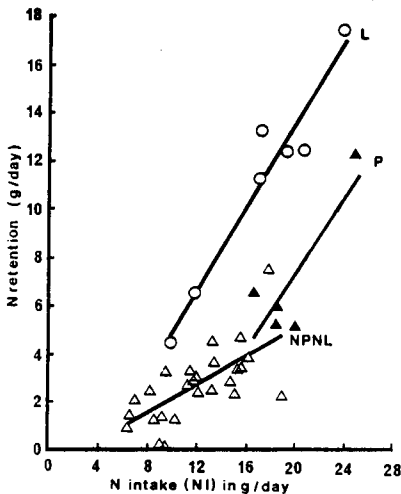
## NITROGEN RETENTION IN FEMALE GOATS

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As female mammals synthesize proteins of different composition at various stages in their reproduction/lactation cycle it was considered likely that the efficiency of nitrogen retention could be influenced by this cycle. An attempt was made to quantify the relationship between the intake and retention of nitrogen in female goats at different stages of reproduction and lactation.

Nitrogen balance studies were carried out on eight animals of feral stock at various stages of reproduction and lactation over a period of fifteen months. The diet consisted of a mixture of chopped oaten hay and lupins (average 1.8% N) was offered *ad libitum* throughout the experiment.

The relationship between nitrogen intake (NI) and nitrogen retention (NR) in these female goats is shown in the Figure.



The regression equations describing these relationships are:

Non-pregnant, non-lactating (NPNL)  
 $NR = -0.8 + 0.29 NI (+ 0.07)$

Pregnant (P)  
 $NR = -8.6 + 0.76 NI (+ 0.20)$

Lactating (L)  
 $NR = -3.7 + 0.86 NI (+ 0.11)$

The standard errors of the estimates of the slopes are given in parentheses. Each point represents one goat.

The efficiency of nitrogen retention (proportion of nitrogen intake, above maintenance retained in the body and/or in milk) was higher in pregnant ( $P < 0.05$ ) and lactating ( $P < 0.001$ ) than in NPNL goats. Furthermore the efficiency of nitrogen retention appeared to increase with nitrogen intake irrespective of stage of reproduction. This effect was probably related to increases in the rate of passage of digesta through the rumen with increasing dry matter intake (Thornton and Minson, 1972), with consequent increases in the proportion of dietary protein reaching the small intestines and in the amount of microbial protein production in the rumen as has been observed in cows (Tamminga, van der Koelen and van Vuuren, 1979).

TAMMINGA, S., VAN DER KOELEN, C.J. and VAN VUUREN, A.M. (1979). *Livestock Prod. Sci.* 6: 255.

THORNTON, R.F. and MINSON, P.J. (1972). *Aust. J. Agric. Res.* 23: 871.

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