

**Study of blood free amino-acid variations in goats
The onset of lactation**

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The blood level of free amino-acids (A.A.) was measured in several animal species to evaluate their protein nutritional status and to show the existence of a first limiting A.A.

Such measurements were done in Alpine goats at the onset of lactation by CHAMPREDON (1972), and more recently in the I.N.R.A. laboratories of the E.N.S.A.I.A. and I.N.A. P.G. Department of Animal Science within a work conducted with the aid of the Rhône-Poulenc AEC company. This study provided the following main results :

— The total blood level of A.A. varied widely from one animal to another ; moreover these variations did not seem to be related to the other measured nutritional and production parameters.

— During the first and second weeks of lactation, the blood level of some A.A. varied according to nutritional and production parameters. Particularly milk yield was positively related to the measured energy deficit lipomobilisation level. It was significantly correlated with the glycine (positively) and valine (negatively) blood levels. These relationships were more marked when the A.A. proportion was considered.

— The bleeding time seemed to influence the blood levels of some individual A.A. : for a similar physiological state, blood levels of glycine and serine were higher and the essential A.A. were lower when blood was removed in the morning after an overnight fasting (I.N.A. P.G.) in comparison with the early afternoon (E.N.S.A.I.A.).

— During the 4th week of lactation, a limiting role of histidine for milk production appeared in the I.N.A. P.G. data but not in the E.N.S.A.I.A. ones. This difference was related to the diet or, more probably, to the morning bleeding time which seemed to be more liable to emphasize a limiting factor.

— During the 4th week of lactation, the blood level of free A.A. after an overnight fasting seemed to be partly determined by the udder extraction rate as they were measured by LINZELL (1968) : a negative and significant relationship appeared between the correlation coefficient values between milk yield and A.A. contents and their extraction rate according to LINZELL.

In conclusion, the individual knowledge of the blood level of free A.A. at the onset of lactation did not result in evident information concerning the goat protein status. Other studies are required to determine to what extent the blood level of free A.A. can be used for appreciating the diet protein quality.

Key words : Goat, blood amino-acid, lactation, protein status.