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Brief Communication

PRELIMINARY OBSERVATIONS ON THE INFLUENCE OF DIFFERENT FEED PROTEIN LEVELS ON THE BLOOD PROFILE OF DAIRY COWS

Significant between-herd variations in a number of blood components (together termed "blood profile"), commonly due to feeding differences, have been demonstrated (e. g. *Payne et al.* 1970, *Hewett* 1974). One of the aims of the present experiment was to study with precision the effects on the blood profile of varying protein intakes.

Materials and Methods

The cows are divided into 3 experimental groups (Gps 1, 2, and 3), all of which are individually fed at the Swedish standard level of energy but at protein levels equivalent to 75, 100, and 125 % of the Swedish feeding standard, respectively.

Blood samples are taken during the 4th, 12th, and 24th weeks of lactation. Fifteen different blood constituents are determined in each sample, but at this stage only serum total protein (TP), urea-N (UN) and protein bound iodine (PBI) will be considered.

The experiment has been in progress since 1971 and is planned to continue until the summer of 1975.

The majority of cows in a given group are represented on all sampling occasions. The number of observations available so far has varied between 8 and 13 per group per sampling occasion.

Results

Significant between-group differences were found for TP, UN, and PBI, but these differences were only systematically consistent between sampling occasions and with protein levels in the cases of UN (Fig. 1) and PBI (Fig. 2). UN values appeared to be directly affected by protein level, differences being particularly well spaced in the 12th week of lactation. PBI values

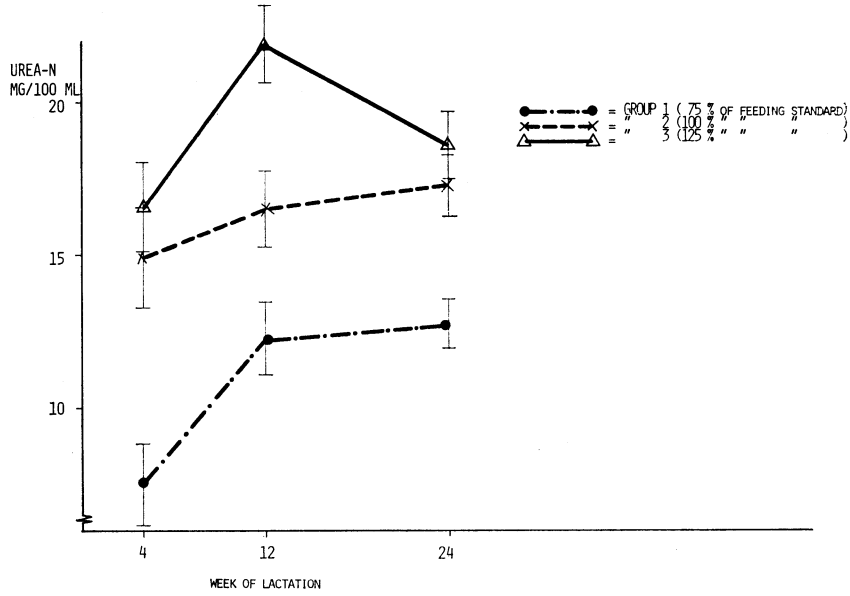

Figure 1. Serum urea-N values in relation to protein intake and lactation stage.

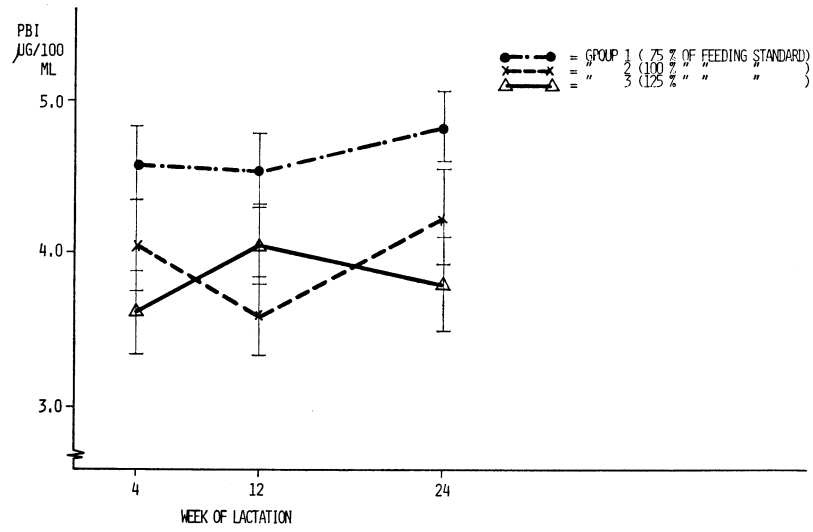

Figure 2. Serum protein bound iodine in relation to protein intake and lactation stage.

demonstrated a distinct tendency to be highest in the low protein group (Gp 1). That this was not directly related to between-group differences in iodine intake is shown by the fact that estimated inorganic iodine values (TI — PBI) demonstrated the reverse tendency. Gp 1 received no oilcake and thereby no rapeseed meal.

Conclusion

Serum urea-N would appear to be a fairly exact reflection of protein intake when energy and roughage remain constant. The reason for the reverse relationship between PBI values and protein intake was less clear, but it is possible that this is related to a goitrogenic effect (*Iwarsson et al.* 1973) due to the presence of rapeseed meal in the ration of Gps 2 and 3.

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