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**Vitamin E in the diet of lactating goats: bioavailability and influence on the passive immunity of kids.**

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**Abstract:**

A total of 30 male kids of single-birth from Payoya breed were used. During the trial duration, kids only fed natural milk, without any dietetic complement and remained stabled. Two batches of fifteen animals each were established according to the feeding systems of their dams: cultivated meadow (CM) and total mixed ration (TMR). The immuno-regulatory potential of the different forms of vitamins E (natural / synthetic) provided to the kid through maternal diets (CM and TMR respect) is evaluated during lactation. So,  $\alpha$ -tocopherol was quantified using high-performance liquid chromatography (HPLC) in plasma of goats and their kids. Also, the kidney fat of the kids was weighed. Correlations and ANOVA with the maternal diet as principal effect were performed using SPSS statistical package.

The health of the newborn is influenced by its nutritional level and hence it influences the visceral fat (Gall 1982). Therefore, kidney fat can be a good indicator of a kid's health and immunity. Colostrum and milk provide vitamin E that stimulate the immune system and essential for the health of the newborn (Przybylska et al. 2007).

There are positive correlations between the plasma concentrations of  $\alpha$ -tocopherol in goats and their kids and between the plasma  $\alpha$ -tocopherol in kids and the weight of kidney fat ( $r=0.606$ ,  $p<0.001$ ;  $r=0.335$ ,  $p=0.013$  resp.).



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The higher bioavailability of natural vitamin E ( Debier et al., 2005) from the diet of CM goats influences the health status of their kids [more kidney fat ( $p<0.001$ ) and higher plasma tocopherol concentration ( $p<0.001$ )] than TMR kids.

**References:**

Debier C.; Larondelle Y. Vitamins A and E : metabolism , roles and transfer to offspring. British Journal of Nutrition, Volume 93, Issue 2 2005, 153–174.

Gall, CF (1982). "Carcass composition". In Third International Conference on Goat Production and Disease. Dairy Goat Journal Publication 472-487.

Przybylska, J, Albera, E and Kankofer, M (2007). Antioxidants in bovine colostrum. Reproduction in Domestic Animals 42, 402–9.