

HHM-PP-97

HHM – Herd Health Management

SEASONAL VITAMIN D CONCENTRATION IN THE SERA OF KRŠKOPOLJE PIGS IN ORGANIC FARMS IN SLOVENIAT. Steferl¹, J. Plut¹, M. Hajdinjak², I. Golinar Oven¹, E. Nadlucnik¹, P. Njegovec³, M. Stukelj¹¹*Clinic for Reproduction and Large Animals, Clinic for Ruminants and Pigs, Veterinary faculty, University of Ljubljana, Ljubljana, Slovenia*²*Laboratory of Applied Mathematics and Statistics, Faculty of Electrical Engineering, University of Ljubljana, Ljubljana, Slovenia*³*VOA d.o.o, Domzale, Slovenia.***Background and Objectives**

Vitamin D is an important micronutrient in pig production. However, as most pigs are reared indoors, there is little data on vitamin D in pigs raised in outdoor organic farms. The aim of our study was to determine serum concentrations of vitamin D in indigenous Krškopolje pigs in organic mixed outdoor farms in all seasons.

Material and Methods

Grower pigs were divided into three groups: Low altitude outdoor pigs (n=19), high altitude outdoor pigs (n=19) and indoor pigs (n=19). Individual blood samples were taken and analysed using ELFA technique (Enzyme Linked Fluorescent Assay) once per season. Measured vitamin D levels of individual pigs were compared and statistically analysed using analysis of variance (ANOVA) and Tukey's HSD test or Welch's t-test, depending on the results of the Bartlett's test for homoscedasticity, to test for differences between the different groups of pigs and seasons.

Results

Average serum concentrations of vitamin D in both groups of outdoor pigs peaked in summer (73,8 and 86,5 ng/ml) and then decreased in the following months, while serum concentrations of vitamin D in indoor pigs were lower during the same period (22,9 ng/ml). We observed that serum concentrations of vitamin D in the group of indoor pigs were highest in autumn (40,5 ng/ml). Statistical significance was found between different seasons as well as between different groups of pigs.

Discussion and Conclusion

In our study, we found that vitamin D concentration in pig serum is highest in summer, when days are longest. There is lack of studies on serum vitamin D concentration in pigs, especially in organic farms. Our results showed that serum concentrations of vitamin D varied within the herd, but the average serum concentrations in both outdoor groups were higher in summer than reported in the study in outdoor herds in Denmark. Data from other study indicate that 30 ng/ml vitamin D in the blood is considered the minimum standard, but 50 to 80 ng/ml is required for optimal development. Minimum and optimum values for vitamin D serum concentrations are still under discussion.