Seasonal Vitamin D Concentration in the Sera of Krškopolje Pigs in Organic Farms in Slovenia

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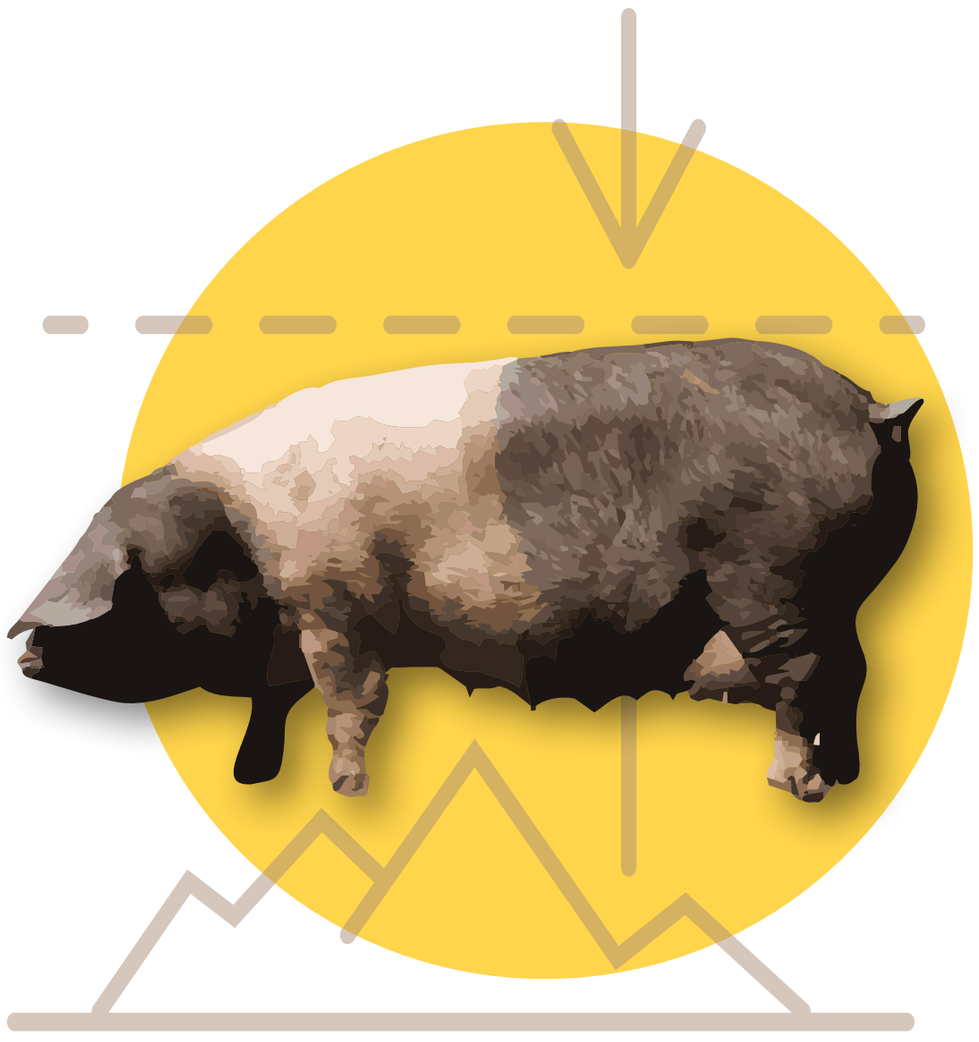
1 Background and Objectives

Vitamin D is an important micronutrient in pig production. Little data is avaliable 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 mixed organic free-range farms in all seasons.



2 Material and Methods

Grower pigs were divided into:

- **Group A (low altitude outdoor pigs)**
- **Group B (high altitude outdoor pigs)**
- **Group C (indoor pigs)**

Each group consisted of 19 pigs.

Individual blood samples were taken and analysed using ELFA technique (Enzyme Linked Fluorescent Assay) once per season in 2022.

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.

3 Results

The 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 the serum concentrations of vitamin D in group C were lower during the same period (22,9 ng/ml) (Fig. 1).

The serum concentrations of vitamin D in group C were highest in autumn (40,5 ng/ml) (Fig. 1).

Statistical significance was found between different seasons as well as between different groups of pigs.

4 Discussion and Conclusion

Vitamin D concentrations in pig serum were highest in summer, when the days were longest. There is a lack of studies on serum vitamin D concentration in pigs, especially on 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 (1).

Data indicates 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 (2). Minimum and optimum values for vitamin D serum concentrations are still under discussion.

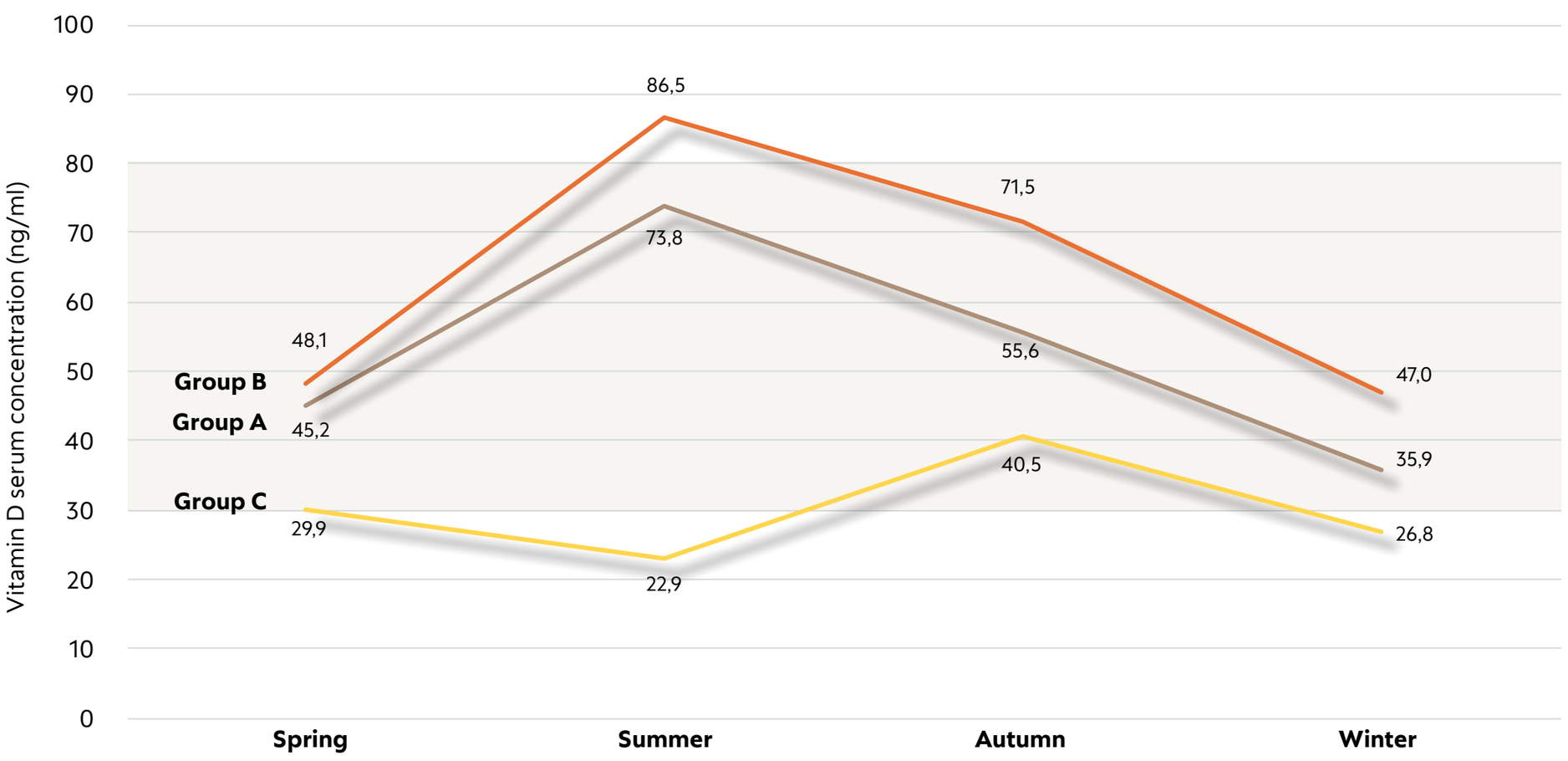


Fig. 1: Seasonal average serum vitamin D levels in all sampled pig groups

References

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