

ZINC DEFICIENCY IN BREEDS OF DAIRY COW IN THE CZECH REPUBLIC

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The aim of this study was to evaluate serum zinc levels and determine deficiency of this micro-element in the Czech Republic.

Serum zinc concentrations were measured in 583 Holstein high-yield dairy cattle. Samples were collected as a part of monitoring herd's health status during performing the metabolic profile test. Those tests has been performed on 28 selected farms during year 2018, either for preventive or diagnostic reasons. There is one to five groups containing 5–10 animals is chosen for a metabolic profile test (e.g. group after calivng, 1/2 lactation, end of lactation and dry period). Blood samples were collected from the the coccygeal vein into serum separation tubes. Serum levels of zinc were measured by atomic absorption spectrometry (AAS) at wavelength 213.9. The measured values of samples were then compared with a reference physiological range of 12.0–15.0 $\mu\text{mol/l}$. The data were evaluated by using a standard deaviation.

According to comparison with physiological range 5 groups were created: $<8.0 \mu\text{mol/l}$ — 34 pcs, 6 % (σ 1.24); 8.01–10.0 $\mu\text{mol/l}$ — 98 pcs, 17 % (σ 0.55); 10.01–11.9 $\mu\text{mol/l}$ — 148 pcs, 25 % (σ 0.56); 12.0–15.0 $\mu\text{mol/l}$ — 225 pcs, 39 % (σ 0.83); 15.01 $\mu\text{mol/l}$ and more — 78 pcs, 13 % (σ 2.43). Standard deviation helped us to determine that highest variability of values were in groups with highest and lowest zinc levels, which might be due to wide range of results in those groups. In other groups variability of zinc status was low.

Serum zinc levels in high-yield cows are very variable in the Czech Republic. In the 39 % of samples physiological level of zinc was measured. As deficiency we consider a value lower to 12 $\mu\text{mol/l}$, in our study it was 48 % of the samples.

Keywords: ZINC DEFICIENCY, METABOLIC PROFILE TEST, DAIRY CATTLE