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Influence of feeding ω-fatty acids containing products on the boars breeding ability

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The aim of the study was to investigate the influence of food components containing ω-fatty acids on the boars breeding ability characterizing indices in the sexual hormone activity reduced period (April- June). The investigation was carried out in the company of artificial insemination.

Materials and methods

Until 25.05.2010, boars received 3 kg barley meal, 220 g food additives (50% protein), 100 g minerals and vitamins.
Since 25.05.2010- 20 ml linseed oil and 250 g linseed cake had been added to the food ration.

In 2011, the boars ration all the time contained: 1.9 kg barley meal, 0.6 kg wheat meal, 0.1 kg corn meal, 0.3 kg soy cake, 20 ml fish oil, 60 g fish meal, 100 g minerals and vitamins.

The 10 boars venous blood samples for biochemical analyses and ejaculates were obtained and evaluated in identical periods of the years 2010 and 2011: on 12.04., 29.04., 25.05. (one more time on 30.06.2010).

Data were statistically analyzed by SPSS 11,5.

Results

At spring time (April-May, 2010), when boars received 3 kg barley meal, 220 g food additives (50% protein), 100 g minerals and vitamins, a reduction tendency of boars ejaculate volume (EV), concentration of spermatozoa (CS) (in 2011), blood testosterone (T) and oestradiol (E) level ($p>0.05$) were detected (Figures 1,2,3,4).

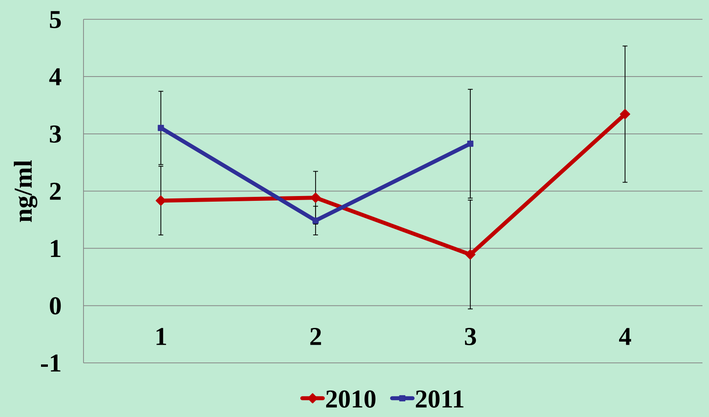

Figure 3. Dynamics of blood testosterone concentration

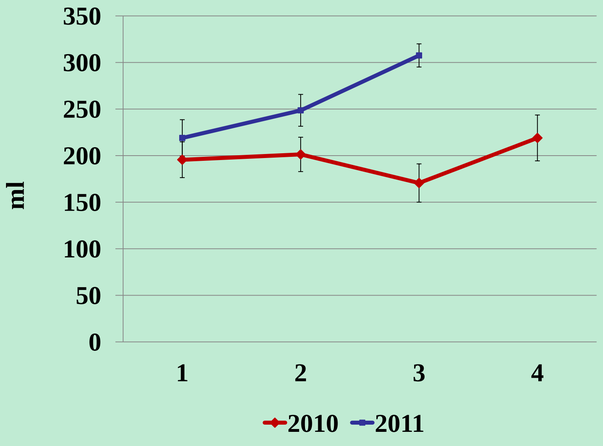

Figure 1. Dynamics of boars ejaculate volume

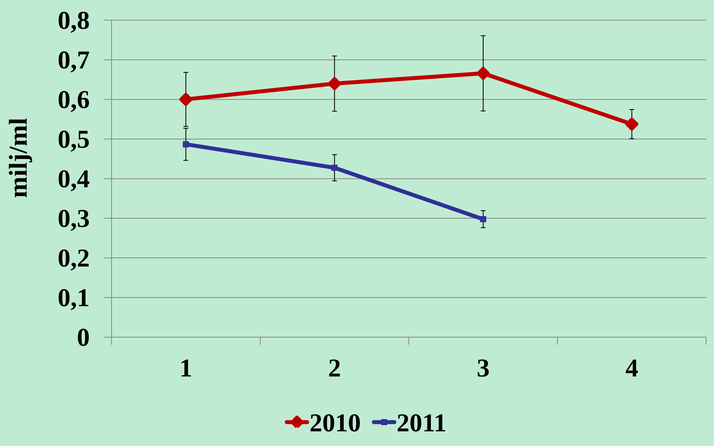

Figure 2. Dynamics of spermatozoa concentration

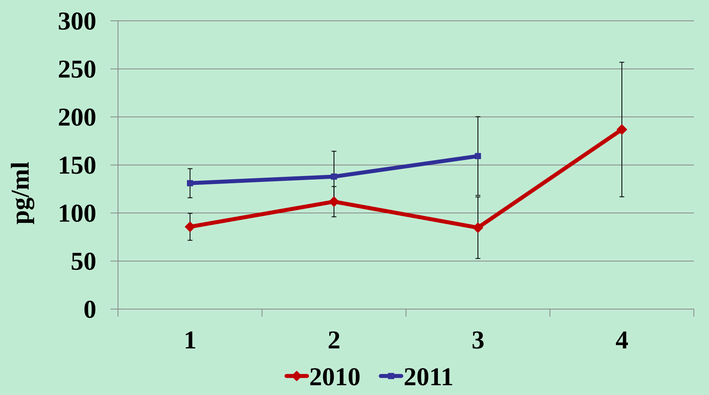

Figure 4. Dynamics of blood oestradiol concentration

Adding linseed oil and cake for 35 days increased EV, high density lipoproteins (HDL) ($p>0.05$), T, E concentration ($p=0.07$), and lowered CS, total cholesterol (H), and low density lipoproteins (LDL) level in the blood (Figures 1,2,3,4,5,6,7).

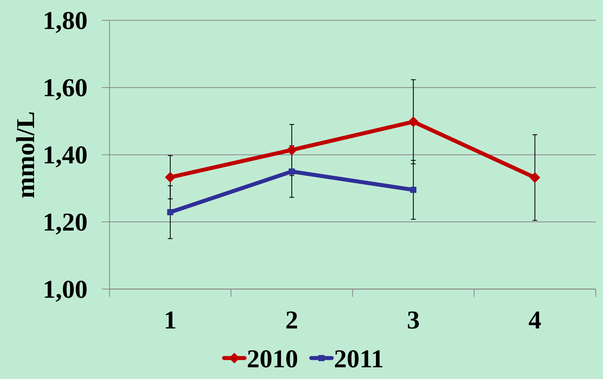

Figure 5. Dynamics of total cholesterol in blood

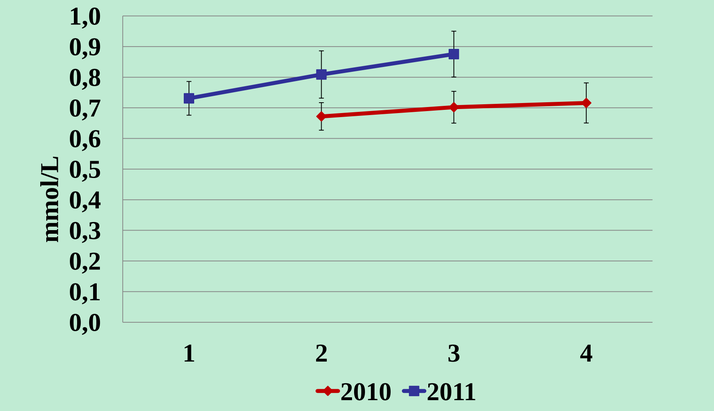

Figure 6. Dynamics of HDL in blood

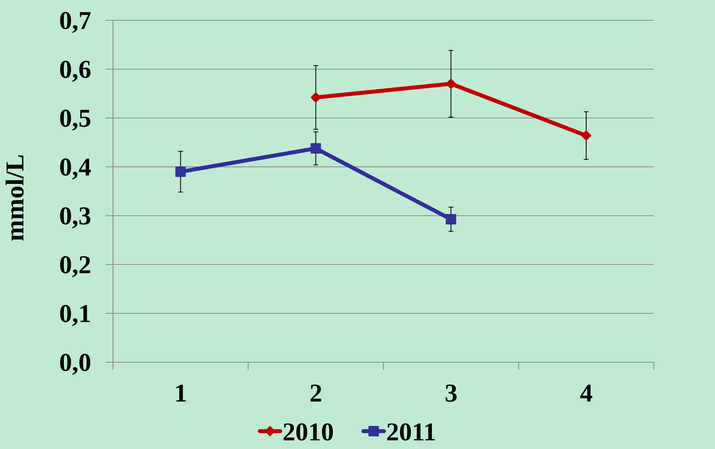

Figure 7. Dynamics of LDL in blood

In 2011, ω-fatty acids containing food components (fish oil and meal, corn meal and soy cake) caused similar and more notable differences in previously listed measurements of boars breeding ability compared to the year 2010, especially in 25.05.2011., when differences were significant ($P<0.05$). In this study, we detected HDL correlation with E ($r=0.7$; $p<0.01$) and T ($r=0.5$; $p<0.05$); EV correlation with CS ($r=-0.7$; $p<0.01$) and HDL ($r=0.4$; $p<0.01$).

In conclusion, feeding ω-fatty acids containing products improved the boars breeding ability in April-June period: significantly increased EV, E and T, but CS decreased; H and LDL showed a tendency to diminish, but HDL- to grow up.

Poster No. 14537