

THE EFFECT OF CALCIUM LEVEL ON EGG QUALITY CHARACTERISTICS

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AIM

The aim of the study was to determine the effect of calcium content in feed mixture on eggshell and egg content quality characteristics.

METHODS AND MATERIAL

The experiment was realized with ISA Brown hens from the 20th to 60th week of age and housed in conventional cages (550 cm² per hen). The laying hens were fed by commercial feed mixture with different calcium level. The control group had 3.5% of calcium in diet and in the experimental group was used mixture with lower share of calcium (3.0%). The egg quality determination was carried out by the devices from firm TSS England. Resultant values were statistically analyzed by SAS program.

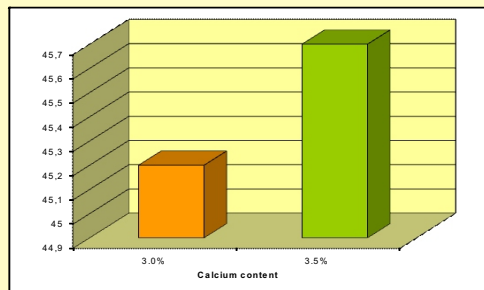


Device for eggshell strength evaluation

RESULTS

The findings showed that calcium content had significant effect on yolk quality characterized by yolk index ($P < 0.05$). The higher values of yolk index were recorded in hens fed by feed mixture with higher content of calcium (45.7%) compared to experimental group (45.2%).

Figure 1 Yolk index (%)



But no influence of calcium level was observed for albumen quality characteristics. Calcium content in feed mixture influenced especially eggshell quality. There were found significant differences in shell thickness ($P < 0.05$), shell strength ($P < 0.001$) and shell percentage ($P < 0.05$). The values of shell thickness (0.370 versus 0.361 mm), strength (4893 versus 4651 g.cm⁻²) and percentage (12.3 versus 12.2%) grew with increasing of calcium share in diet.

Figure 2 Shell thickness (mm)

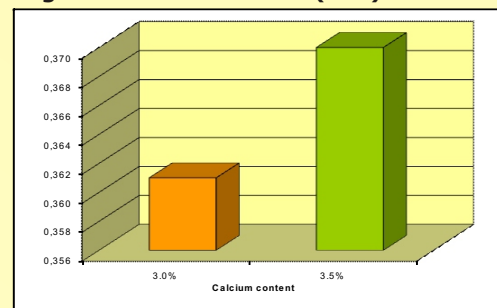


Figure 3 Shell strength (g.cm⁻²)

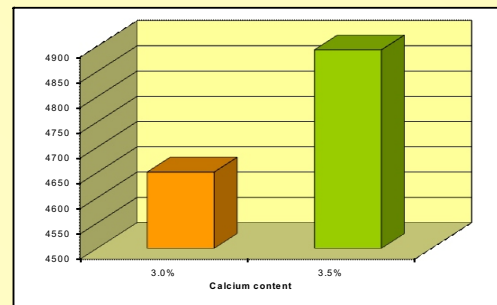
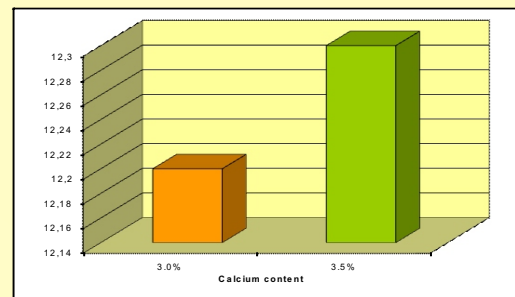


Figure 4 Shell percentage (%)



CONCLUSION

The quality of yolk and shell was significantly influenced by calcium content in feed mixture. The best results were achieved with higher level of calcium (3.5%).

ACKNOWLEDGEMENT

This study was supported by the Ministry of Education, Youth and Sports of the Czech Republic (Project No. MSM 604 607 0901), FRVS grant (No. 21320/1161/1610) and FAFNR internal grant of Czech University of Life Sciences (No. 21320/1312/213140).