IN VIVO PREDICTABILITY OF EGG YOLK RATIO IN HEN'S EGGS BY MEANS OF COMPUTER TOMOGRAPHY

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AIMS OF THE STUDY

The aim of the present study was to examine, whether computer tomography (CT) is suitable for the *in vivo* prediction of egg yolk ratio

MATERIAL AND METHODS

The experiment was carried out with 60 hen's eggs originated from a 36 weeks old ROSS-308 hybrid parent stock

The eggs were scanned with a SIEMENS Somatom Plus 4 Expert spiral CT scanner

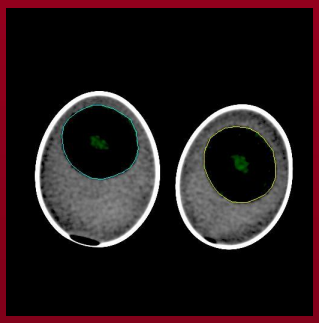
During each scanning session 10 eggs were measured simultaneously

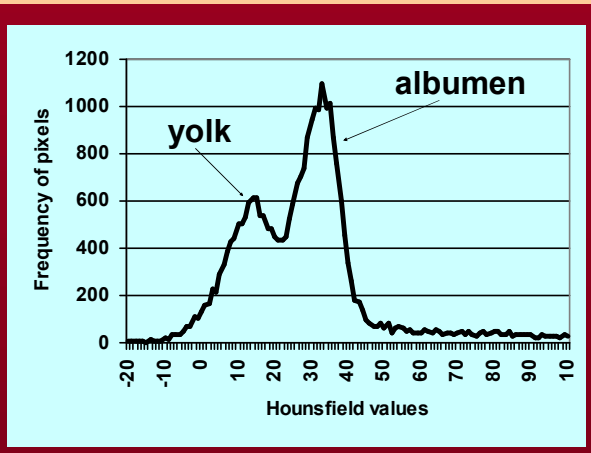
After the CT measurements, all of the eggs were broken and their yolk ratio to the whole eggs was calculated

For predicting the egg yolk ratio *in vivo*, prediction equations were created using the CT data as independent variable in the model

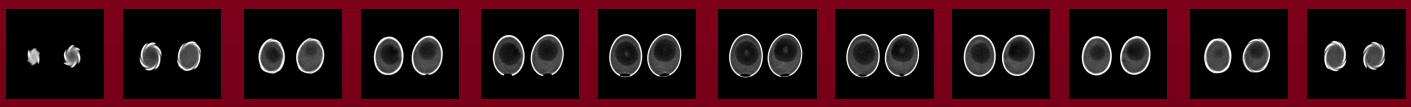
RESULTS

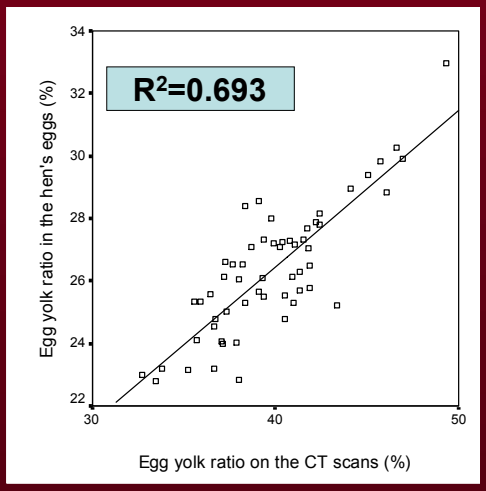
Because of the overlapping of the X-ray density values of the yolk and albumen, the evaluation based on the X-ray density values of the picture elements seems not to be useful for determining the egg yolk ratio in hen's eggs *in vivo*

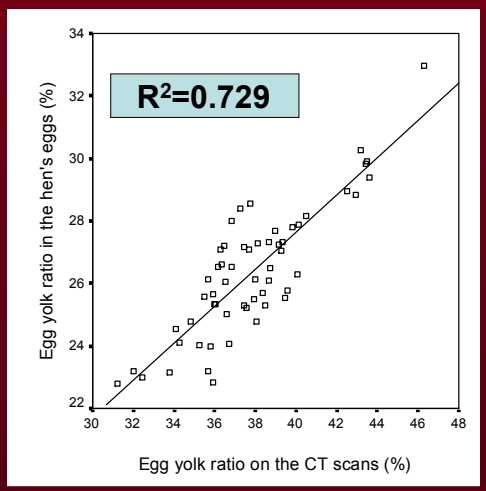


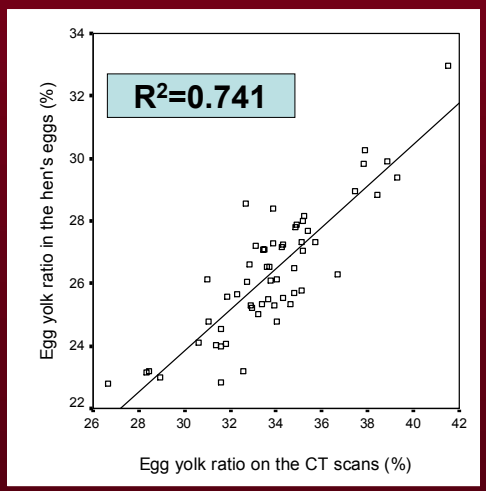


As another method of the evaluation, the surface of the egg yolk was determined on the cross-sectional images for predicting the egg yolk content *in vivo*









Using the scan taken at the germinal disc resulted in a 69.3% accuracy of prediction

Only a slightly better accuracy was obtained, when the two or four neighbouring (±1 or ±2) scans were also involved into the evaluation

CONCLUSIONS

Computer tomography seems to be a useful method for the prediction of egg yolk ratio *in vivo*. The obtained accuracy of prediction seems to be precisely enough for using this technique in further investigations in order to examine the effect of egg composition on the egg's hatchability and hatched chick's development.

ACKNOWLEDGEMENT

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