



Broiler breeder age affect embryo and chick bone development at hatch

C.A. Torres*, D.R. Korver; University of Alberta, Edmonton, AB Canada



*torres@ualberta.ca

WHY BROILER BREEDER AGE?

Breeder flock age is known to have an effect on egg weight, chick weight and growth. Little research is available with regard to whether hen's age has an effect on bone development .

OUR APPROACH

We investigated the effects of maternal age on bone traits at 20 days embryo age and at hatch from early (33 wk), mid (46 wk) and late (60 wk) hen age.

Embryo bone - 20 days of incubation

At each maternal age, femur and tibia bones of 72 embryos were stained with Alcian Blue and alizarin Red S for evaluation of collagen and calcified bone, respectively. Bone length and width were also measured.



Picture. Bone calcification ratio in embryos at 20 days of age with Image J software.

Chick bone at hatch

Tibia and Femur bone weight, width and length of 72 chicks were measured at hatch.



Picture 1.



Picture 2.

Pictures 1 and 2 – Chicks at hatch; Tibia and femur length and thickness measurements at hatch, respectively.

OUR OBSERVATIONS

► Broiler breeder age effect on bone traits at 20 days embryo

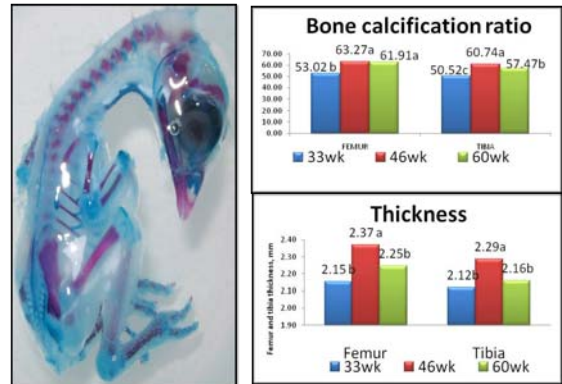
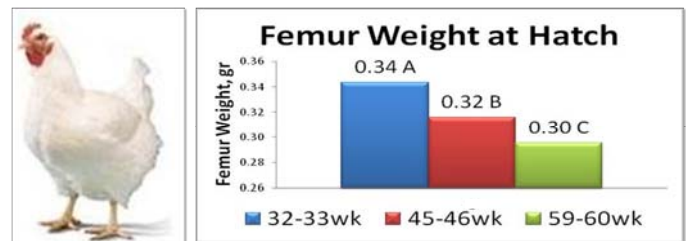


Chart 1 and 2. Least squares means with no common letters are significantly different ($p \leq 0.05$).

Tibia and femur bones had lower bone calcification rate in embryos from early hens compared with mid and late hen's age.

Femur and tibia bones were thicker in embryos from mid hens compared with early and late hen's age.

► Broiler breeder age effect on bone traits at hatch



Least squares means with no common letters are significantly different ($p \leq 0.05$)

Chick femur weight decreased 12% from early to late egg production.

WHAT DOES THIS MEAN?

Maternal flock age has an effect on embryo and chick bone development. Therefore, it might have an impact on chick quality and bone structure further in juvenile growth.

ACKNOWLEDGEMENTS - Agriculture and Food Council