

MSc Defence

Validation of Dual-Energy X-Ray Absorptiometry Scanners for Determination of
Body Composition in Laying Hen Pullets

Sierra Schaus

Date: January 9th 2023 at 9:30am

The MSc Defence for Sierra Schaus has been scheduled for January 9th, 2023 at 9:30am. The defence will be held online via Teams and in room 141: https://teams.microsoft.com/l/meetup-join/19%3ameeting_YjdkNDE1ZjgtZWlyZi00M2U1LWE3ZmEtNmNkNmM4OWYyZWU0%40thread.v2/0?context=%7b%22Tid%22%3a%22be62a12b-2cad-49a1-a5fa-85f4f3156a7d%22%2c%22Oid%22%3a%22fbd28915-dda5-478f-8ecb-a3682dcf0c3a%22%7d

The exam committee will consist of:

Examining Chair: Dr. Andy Robinson

Advisor: Dr. Gregoy Bedecarrats

Advisory Committee Member: Dr. Adronie Verbrugghe

Additional Committee Member: Dr. Martin Zuidhof

Abstract:

The egg industry is advancing to meet the needs of the growing human population and consumer preferences. Researchers need to monitor how these changes impact chickens' physiology. One method to monitor composition is dual-energy x-ray absorptiometry (DXA). However, this method had not been validated for use in laying hens. This study aimed to validate the use of the DXA scanner for use in two strains of laying hen pullets. Significant differences were found between DXA results and the gold standard results of chemical analyses. Linear regressions were fitted to the data to investigate the relationship between results in post-mortem birds and high correlations were found for body weight ($R^2 = 1.00$), fat ($R^2 = 0.90$), lean ($R^2 = 1.00$), and mineral ($R^2 = 0.97$) content. Agreement in models was worse for live DXA scans indicating issues from motion artifacts. Additionally, poor agreement in models indicate DXA cannot properly interpret feathers.