DYNAMICS OF THE OVIDUCT MICROMORPHOMETRY OF JAPANESE QUAIL, IN RELATION WITH LAYING CURVE PHASE

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Abstract

In laying hens hybrids, the morpho-physiological bases of table eggs production are well known. Within this context, the dynamics of the morphological and histometrical traits of the oviduct were investigated in another avian species of interest for poultry farming – Japanese quail, in relation with laying curve stages. A population of 400 females was studied, throughout the 8-35 weeks age span. During the 4 key moments of the laying curve - beginning (9 weeks), peak (20 weeks), plateau (26 weeks), ending (35 weeks) – 7 quails were slaughtered in order to sample the oviducts and to investigate them morphologically and histometrically on cross sections cut through magnum and uterus functional the processed through subsequent paraffin inclusion technique and trichrome staining (HEMB). The microscopic investigations run on 20 readings per trait and anatomical region, via MoticImages+3.0 software connected to a Motic M230 microscope, revealed that both mucosa thickness, folds, and size of its epithelial cells in magnum and uterus followed a developmental trend in accordance with the oviduct functional rhythm, overlapped with the apparent laying curve (initial slow increase, then strong hypertrophy during peak of production and a gradual decreasing throughout plateau, followed by atrophy and discontinuities of the epithelium towards the end of laying). Mucosa thickness varied between 1379 µm (beginning of lay) and 1462 µm (peak) in the albuminogenic tract and between 2003-2154 µm in the shell gland (beginning – peak), while the laying rate varied from 45% (beginning) to 85.4% (peak), to 71.3% (plateau) and to 52.75%, towards the end of laying.

Key words: Japanese quail, oviduct, laying curve, magnum, uterus, histometry