Apart from the central organs of the immunological system of birds, i.e. the thymus and the bursa of Fabricius, an important role is played by peripheral organs and organized clusters of the lymphoid tissue in individual organs and systems. Due to the specific anatomy of the avian reproductive system, it is continuously exposed to the risk of ascending infection, while the infection can not only impair its functions but can also lead to the vertical pathogen transmission onto progeny and to egg contamination. In addition, the proper functioning of the local immune mechanisms in the ovary and the oviduct largely affects the transfer of the passive immunity to the progeny in the form of maternal antibodies. Considering the above, a study was conducted with the aim to determine the effect of age of reproductive turkey hens on changes of the local immunity in their reproductive system and to evaluate correlations between immunoglobulin titer in the body of turkey layers in the various periods of the laying production cycle and the titer of these antibodies in components of hatching eggs and poults' serum.

The monoclonal and polyclonal antibodies, the flow cytometry methods, and commercial ELISA tests were used to determine the absolute number of T cells in particular $CD4^+$, $CD8^+$, and $CD4^+/CD8^+$ subpopulations; the number of IgM^+ B cells in blood, spleen, and mucosa of the oviduct of turkey hens, as well as the total level of IgY antibodies and the level of maternal specific antibodies transferred from the layer to the progeny.

The analysis of serological results demonstrated large differences in the transfer of maternal antibodies at particular stages of the laying period, and also a lack of a stable, explicit correlation between laying intensity and the extent of their transfer. In addition, the transfer (%) of maternal antibodies was found to depend on antigen type, thereby reaching from 33.2% (APV) to 51.9% (NDV) on average in the case of the viral factor, and ca. 45% in the case of the bacterial one (ORT, PM).

Furthermore, study results point to the effect of the age of birds and, resultantly, of the period of a laying production cycle, on the variability in the number and percentage contribution

of individual lymphocyte subpopulations in the reproductive system of turkey layers as well as in the level and transfer percentage of maternal antibodies. The analyzed subpopulations of T and B lymphocytes were evenly distributed in the mucous membrane of the magnum, isthmus, and uterus of the oviduct, and their mean absolute number was found to depend on the period of the production cycle of turkey layers, because it increased successively till the peak and afterwards decreased successively till the end of the egg production cycle. Results obtained in the study enable concluding that the cellular defense mechanisms in the reproductive system of turkey layers are not that efficient at the terminal stage as in the peak of the egg production cycle.