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EFFECTS OF LENGTHENING THE LAYING PERIOD OF LAYING HENS ON EGG QUALITY

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Egg quality is influenced by various factors, such as the hen age and the egg storage conditions, which may have significant sanitary and economic consequences. Controlling egg quality is therefore a major challenge for the table egg industry. Progress in genetic selection for egg quality and production has made possible to lengthen the laying cycle of hens, which is also in line with the sustainability of laying farms. For example, the egg production period, which used to last about one year has been extended by six months (+ 150 eggs/hen). However, there is relatively little information available on the consequences of such an extension on the quality of table eggs and its evolution during storage. Results of our study on Lohmann Tradition hens reared to 101 weeks of age showed a decrease in laying rate (-30% between 45 and 101 weeks of age) and an increase in average egg weight (+7%) during the laying cycle. This increase in weight mainly results from the increase in yolk weight (+13%) and albumen weight (+7%), while the shell weight decreased slightly over the studied period (-6%). Several other quality parameters decreased significantly with hen age, notably shell strength (-24%), yolk index (-5%) and Haugh units (-7%). These livestock monitoring data are fully consistent with the expected results. Eggs from hens of 30-32, 70-74 and 94-100 weeks of age were stored from 0 to 28 days and then characterized. As expected, the storage time influences the internal egg quality, but the degradation kinetics of the internal egg quality do not seem to differ when comparing 94-100-week old hens to younger hens (30-32 and 70-74 weeks). Additional analyses are in progress (antimicrobial assays, proteomics, etc.). The results of these analyses will be integrated in order to have an in-depth view of the effects of the lengthening of the laying cycle on the overall health of hens, and on physicochemical and molecular egg characteristics.