

Feeding High-Oleic Peanuts to Layer Hens Enhances Egg Yolk Color and Oleic Fatty Acid Content in Shell Eggs

O. TOOMER*, Market Quality & Handling Research Unit, ARS-USDA, Raleigh, NC, 27695; **A. HULSE-KEMP**, Genomics and Bioinformatics Research Unit, ARS-USDA, Raleigh, NC, 27695; and **E. SANDERS**, **R. MALHERIOS**, and **K. ANDERSON**, Prestage Department of Poultry Science, North Carolina State University, Raleigh, NC, 27695.

Previous studies have identified normal-oleic peanuts as a suitable and economical broiler feed ingredient. However, no studies to date have examined the use of high-oleic (HO) peanut cultivars as a feed ingredient for poultry and determined the impact of feeding HO peanuts on poultry performance, nutritive or sensory qualities of the eggs produced. This project aimed to examine the use of HO peanuts, as a feed ingredient for layer hens to determine the effect on hen performance, egg lipid chemistry, sensory and quality. Thirty-three 57-week-old layer hens per treatment were fed a conventional soybean meal + corn control diet (SBM), a HO peanut + corn diet or a conventional diet spiked with oleic acid oil (SBM+OA) for 8 weeks in conventional battery cages. Body, feed and egg weights were collected weekly. Egg samples were analyzed for quality, lipid analysis and sensory attributes. There were no differences in hen performance (bodyweights, feed intake), egg quality or number of eggs produced between the treatment groups. Eggs produced from layer hens fed the HO peanut diet had greater yolk color, HO fatty acid and β -carotene levels in comparison to eggs of the other treatment groups. Eggs produced from layer hens fed the conventional diet (SBM) and SBM + OA diet had significantly greater content of saturated fatty acids (palmitic and stearic) in comparison to eggs produced from layer hens fed the HO peanut diet. Additionally, 100 consumer panelist preferred the sensory attributes of eggs produced from layer hens fed the HO peanut diet equally to shell eggs produced from layer hens fed a conventional SBM diet. This study identifies HO peanuts as an abundant commodity that could be used to support local agricultural markets of peanuts and poultry within the southeastern US and be of economic advantage to producers while providing a potential health benefit to the consumer with improved egg nutrition.