Effects of Lactobacillus cultures on performance of laying hens, and total cholesterol, lipid and fatty acid composition of egg yolk

Abstract

BACKGROUND: The use of antibiotic growth promoters in animal feeds is not approved for laying hens in many countries, and economically feasible biological measures which include probiotics are developed to improve hen performance. The present study investigated the effects of probiotics on hen performance for a 48-week period and the cholesterol, total lipid and fatty acid composition of egg yolk at 24, 28 and 32 weeks of age. RESULTS: Egg weight of Lactobacillus culture (LC)-fed hens was significantly ($P < 0.05$) greater than that of control hens throughout the laying period. From 20 to 44 weeks of age, LC-fed hens produced a significantly ($P < 0.05$) lower percentage of small eggs and a higher percentage of large eggs, and from 45 to 68 weeks of age a significantly ($P < 0.05$) lower percentage of medium eggs and a higher percentage of large and extra-large eggs than control hens. Significantly ($P < 0.05$) less cholesterol was found in egg yolks of hens fed LC at 24 and 28 weeks of age, but not at 32 weeks of age. The total lipid content and the fatty acid composition of egg yolks were similar between the treatments at 24, 28 and 32 weeks of age, except for stearic acid (C18:0), which was significantly reduced in the egg yolk of LC-fed hens at 28-32 weeks of age. CONCLUSION: The greatest benefit of LC was in increasing egg weight and improving egg size by influencing a shift from small and medium to large and extra-large eggs.