

# **Effects of Dietary Substitution of Ordinary Maize Meal with Quality Protein Maize Meal on the Performance of Broiler Chicken**

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## **Abstract**

**Background and Objective:** Quality protein maize has a high concentration of essential amino acids compared ordinary maize, hence can be exploited in broiler chicken production. We investigated the effects of graded substitution of ordinary maize (NMM) meal with Quality Protein Maize meal (QPM) on the performance of broiler chicken. **Methodology:** About 225 day-old Ross Breeders broiler chicks were randomly assigned to five grower-starter diets (SD1-SD5) wherein QPM replaced NMM at 0, 25, 50, 75 and 100% and fed for 4 weeks. The birds were transferred onto similarly constituted corresponding finisher diets; FD1-FD5. Growth performance, carcass yield and gastrointestinal (GIT) macro-morphometry were determined. **Results:** At 28 days chicks fed QPM-based starter-grower diets were heavier, had higher Body Mass Gain (BMG) and Average Daily Gain [ADG, ( $p < 0.05$ )]. At 56 days birds fed finisher diets FD4 and FD5 were the heaviest with the highest BMG ( $p = 0.0002$ ). From 29-56 days birds fed finisher diets FD4 and FD5 had the highest ( $p < 0.05$ ) ADG. Birds reared on SD5 and finisher diets FD5 had the most economic FCR ( $p = 0.0002$ ). Overall, BMG and ADG were highest ( $p = 0.0001$ ) in birds fed starter-grower diets SD4 and SD5 and transferred to finisher diets FD4 and FD5. Despite their high FI ( $p = 0.0084$ ), birds reared on SD5 and transferred to FD5 were the most efficient feed utilizers ( $FCR = 1.67 \pm 0.02$ ,  $p = 0.0016$ ). Dressed mass increased ( $p = 0.0001$ ) with dietary QPM. Feeding starter (SD3-SD5) and finisher (FD3-FD5) diets caused longer GIT ( $p = 0.0001$ ) while feeding starter (SD4-SD5) and finisher (FD4-FD5) diets caused the heaviest livers ( $p = 0.0005$ ). **Conclusion:** The QPM increased the growth performance, feed efficiency and carcass yield of broiler chicken.

**Keywords:** Zea mays, quality protein maize, lysine, boiler chicken, growth performance, feed cost, feed utilization efficiency, dressed mass, carcass yield, viscera morphometry