

Choawit Rakangtong 2012: The Use of Cassava and Sulfur Amino Acids for Least-Cost Feed Formulation in Broiler Diets. Doctor of Philosophy (Animal Science), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Chaiyapoom Bunchasak, Ph.D. 121 pages.

Three experiments were designed to study the use of cassava and sulfur amino acids for least-cost feed formulation in broiler diets. The experiment 1 was conducted to determine the effects of two dietary energy sources (corn and cassava) and three type of dietary methionine supplementation (without methionine, dry DL-methionine (DLM) supplementation and liquid DL-methionine hydroxy analog-free acid (LMA)). In all, 1500 male broiler chicks (Ross 308) were divided in to 6 group of 10 replicates of 25 chicks each. Weight gains, ADG, FCR, FCG and meat yield of chicks fed diets supplemented with LMA or DLM were significantly greater than those of chicks fed the methionine deficient diets ($P<0.05$), while abdominal fat was lower. For effect of energy sources, chicks fed the cassava diet showed poorer feed conversion ratio and meat yield, but the total protein, albumin and globulin level was higher than chicks fed the corn diet.

In experiment 2, study effects of using cassava and total sulfur amino acid (TSAA) requirement in least-cost formulation (LCF) diets. In all, 1400 male broiler chicks (Ross 308) were divided in to 8 group of 7 replicates of 25 chicks each. There were not significant differences obtained in productive performance and meat yield between chickens fed corn-soybean and LCF-cassava diets at TSAA commercial recommendation levels. The requirement of TSAA for optimum growth performance is 95-100% of the commercial level, whereas TSAA requirement for the best feed cost per gain was found at 88% of the commercial level. The requirement of TSAA for maximum breast meat yield is 106.68% of the commercial level. The total protein, albumin and globulin were increased in LCF-cassava diets.

The experiment 3, a total of 16 chicks was randomly allotted to individual cages at 35 days to measure the digestibility of corn-soybean and LCF-cassava diets at 42 days. Results showed that nutrient digestibility decreased with LCF-cassava diet ($P<0.05$). The apparent protein digestibility in LCF-cassava diets (76.26%) was lower than corn-soybean diets (86.21%)($P<0.05$). However, a total protein in broiler fed LCF-cassava diets was a significant increase ($P<0.05$).

Student's signature

Thesis Advisor's signature