

Chalaporn Marksup 2008: Effect of Mill Types and Corn Particle Sizes on Physical and Chemical Properties of Mash Feed, Egg Quality and Laying Performances under High Stock Density Condition. Master of Science (Animal Nutrition and Feed Technology), Major Field: Animal Nutrition and Feed Technology, Department of Animal Science. Thesis Advisor: Assistant Professor Yuwares Ruangpanit, Ph.D. 99 pages.

The objectives of this study were to determine the effect of mill types and corn particle sizes ground with hammer mill and roller mill in mash feed on physical properties of mash feed, egg quality and laying performances under high stock density condition. The dietary treatments were complete feed containing corn ground with hammer mill to have particle size 1,000 micron (T1), 1,300 micron (T2) and complete feed containing corn ground with roller mill to have particle size 1,000 micron (T3), 1,300 micron (T4). Experimental 1, study for effect of mill types and corn particle sizes on corn and feed physical properties The results indicated that the particle sizes of ground corn in treatments were similar to that in the experimental designed. Corn ground with roller mill had significantly S_{gw} and number of particle size ($P<0.01$) bulk density and surface area significant ($P<0.05$) when compare with corn ground with hammermill. The physical properties of complete feed were similar to that in the ground corn. Experimental 2, study for effect of mill types and corn particle sizes on egg quality and laying performances. Four hundred and eighty Rohmannbrown laying hens, approximately 43 weeks of age, were divided into 4 dietary treatments. Each treatment consisted of five replications with twenty-four laying hens per replication. The 2x2 Factorial Experiment in completely randomized design were use in the experiment. The results indicated that experimental have interaction of mill types and corn particle sizes on yolk color score and coefficient of variance of yolk color score and coefficient of variance of egg weight. Hens in group 1 had coefficient of variance of egg weight, coefficient of variance of yolk color score and % egg yolk higher than the other group. Hens in group 4 had the highest yolk color score. Hens fed complete feed containing corn ground with roller mill had significant higher survival rate egg weight and %egg grades number 0 than that of the hens fed complete feed containing corn ground with hammermill ($P<0.05$). However, hens fed complete feed containing corn ground with hammermill had significant higher shell thickness and % egg shell than that of the hens fed complete feed containing corn ground with roller mill ($P<0.05$). Hens fed complete feed containing ground corn with 1,300 micron had feed/hen/day ($P<0.05$) albumin high, haugh unit ($P<0.01$) higher than that the hens fed complete feed containing 1,000 micron of corn particle size. The results indicated that experimental havn't interaction of mill types and corn particle sizes on coefficient of variance of egg grades, % yolk weight, % shell weight, specific gravity, egg shell thickness, % albumin weight, albumin high, haugh unit and albumin viscosity. Results from the present indicated that corn ground with roller mill obtained average particle size of 1,300 micron optimized the high efficiency in laying hens diet under high stock density condition.

Student's signature

Thesis Advisor's signature