Pannapat Guntapa 2015: Effects of Forced Molting Using a Non-fasting Method on Productive Performance, Stress, Bone Ash Content and Histopathology of Intestinal Tissues in Laying Hens. Master of Science (Animal Science), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Nirat Gongruttananun, Ph.D. 75 pages.

This study was conducted to evaluate the effects of molt induction by using a non-fasting method on productive performance, stress, bone ash content and intestinal histopathology in 97-wk-old hens. The hens were caged, located in a closed layer house, and randomly divided into 5 groups, each group represented by 5 replicates, consisting of 12 birds each. Group 1 (control) was provided with a layer ration and exposed to a 16:8 daylight:dark (L:D) photoperiod daily throughout the study, whereas groups 2, 3, 4 and 5 were induced to molt by feeding with broken rice, rice bran, corn meal or cassava meal molt diets, respectively, for 2 wk. During the 2 wk molt period, all birds were exposed to an 8L:16D photoperiod and had access to drinking water at all times. Following the molt period, the hens were fed the layer diet and provided with 16 h of light per day, and production performance was measured for 16 wk. During the 2 wk molt period, the greatest value of bodyweight loss occurred in group 5 (21.62%) as compared with those of the other molted groups (P<0.05). Feed intake and egg production of group 5 were significantly lower than those of the other molted groups. Interestingly, only hens in group 5 went completely out of production within 7 d. The ratio of heterophil to lymphocyte numbers of group 5 was significantly less than those of groups 2 and 4. However, gonadal morphology, bone traits, plasma cortisol levels, the weight of spleen, bursa and thymus glands and mortality during the 2 wk treatment were not affected by treatments. No significant differences were found among treatments for examinations of intestinal histopathology and salmonella shedding. During the middle phase of the postmolt period, hens in groups 3 and 5 produced more eggs than did the control birds (P<0.05). Significant improvements in albumen quality were observed in the treatment groups at wk 2 and 8 after the 14 d treatment. At wk 6 of the laying period, eggshell thickness of group 2 was greater than those of the other 4 groups. No consistent differences were observed among the experimental groups throughout the 16 wk postmolt period for egg weight, albumen weight, shell weight and mortality.

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