

Patcharee Chanachai 2011: Effects of Prebiotic Supplementation (*Aspergillus* meal) on Production Performance Egg Quality and Microorganism in Digestive Tract of Laying Hens. Master of Science (Agriculture), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Chaiyapoom Bunchasak, Ph.D. 100 pages.

Two experiments were designed to evaluate effects of prebiotic supplementation (*Aspergillus* meal) on production performance, egg quality and microorganism in digestive tract of laying hens. First experiment was investigated the effects of prebiotic supplementation (*Aspergillus* meal) on production performance and egg quality of laying hens. Two hundreds and eighty eight of 28 weeks commercial laying hens (H & N Brownicks) were divided into 3 groups of 6 replications with 16 laying hens each. Total of 3 treatment groups were performed as ; 1) control (without *Aspergillus* meal supplementation), 2) *Aspergillus* meal 0.10% and 3) *Aspergillus* meal 0.20%. The result indicated that *Aspergillus* meal supplementation did not affect to production performance and egg quality when compared to control group ($P>0.05$). However, feed conversion ratio was improved significantly when supplemented *Aspergillus* meal with 0.20% in diet ($P<0.01$). The second experiments was investigated the effects of prebiotic supplementation (*Aspergillus* meal) on production performance, egg quality and microorganism in digestive tract of laying hens. Five hundreds and twelve of 30 weeks commercial laying hens (H&N Brownicks) were divided into 4 groups of 8 replications with 16 laying hens each. Total of 4 treatment groups were devided as follows; 1) control (without *Aspergillus* meal supplementation), 2) *Aspergillus* meal 0.10%, 3) *Aspergillus* meal 0.20% and 4) *Aspergillus* meal 0.30%. The results indicated that *Aspergillus* meal supplementation did not affect to production performance ($P>0.05$), while albumen height and haugh unit were significantly increased ($P<0.01$). *Aspergillus* meal supplementation in diet did not affect to the length of intestine, the length of oviduct, internal organ weight and population of microorganism in ceacum ($P>0.05$). Moreover, the villi height of duodenum and short chain fatty acids in ceacum were significantly increased ($P<0.05$), and the hetrophil/lymphocyte ratio was significantly decreased ($P<0.01$) in *Aspergillus* meal 0.20% and 0.03% groups. In conclusion, supplementation of *Aspergillus* meal in diet improve production performance, internal egg quality and reduced stress in laying hens.

Student's signature

Thesis Advisor's signature