

49. Effect of mash and crumbled diets on laying performance of hens and egg quality

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Feed presentation is one of the important factors that determines feed utilization by chickens. Most conclusive studies respect to feed form have been conducted with broilers. However, when it comes to laying hens research not only are limited but also inconclusive. The objective of this study was to compare a crumbled diet with a mash diet on laying performance and egg quality. In this context, seven hundred and twenty 16-week-old Lohman Brown-Classic hens were housed in environmentally controlled barn and randomly allocated in 24 cages of 30 birds each and assigned to one of the 2 dietary treatments (12 replicates/treatment). The laying hens were fed a standard diet based on wheat and corn with two feed presentation forms: mash and crumbled. Productive performances were recorded weekly from 23 to 85 weeks of age. For egg quality measurement, 10 fresh eggs per cage were collected at 35 and 82 weeks of age to determine haugh units, yolk colour (DSM fan and Hunter Lab), and shell thickness. Compared to mash diet, from 23 to 46 weeks of age, crumbled diet decreased feed consumption ($P < 0.01$), improved feed conversion ratio (FCR, $P < 0.05$), reduced shell thickness ($P < 0.05$), DSM yolk colour ($P < 0.05$) and yolk Hunter colour values a and b ($P < 0.01$) while it increased lightness (L, $P < 0.001$). From 74 to 85 weeks of age, crumbled diet also improved FCR ($P < 0.05$), increased egg production ($P < 0.05$), but reduced egg weight ($P < 0.001$), and increased Haugh unit values ($P < 0.01$), and yolk Hunter colour values a and b ($P < 0.05$) while it decreased L ($P < 0.01$) compared to mash diet. According to our results, offering crumbled diet in contrast to mash, improved feed efficiency and modified egg yolk colour. Furthermore, at the end of the laying period, crumbled diet also improved egg production without any negative impact on eggshell thickness and resistance.

Key words: laying hens; mash; crumbled diet; egg production; egg quality