

**Influence of the inclusion of a postbiotic from *Aspergillus oryzae* on productive performance and egg quality of hens from 18 to 41 weeks of age**

A.F. de Juan<sup>1</sup>, J. Ben Mabrouk<sup>1</sup>, C. Ocasio-Vega<sup>2</sup>, N. L. Corrales<sup>1</sup>, G.G. Mateos<sup>1,3</sup>

<sup>1</sup>Departamento de Producción Agraria, Universidad Politécnica de Madrid, Madrid, Spain.

<sup>2</sup>BioZyme Incorporated, St. Joseph, Missouri, USA.

<sup>3</sup>Corresponding author: gonzalo.gmateos@upm.es

1 The effects of the inclusion in the diet of a postbiotic derived from *Aspergillus oryzae*  
2 (AO) on performance and egg quality traits was studied in of Lohmann Brown Classic  
3 hens from 18 to 41 wk of age. The postbiotic was produced via submerged fermentation  
4 with AO under controlled conditions (BioZyme, Inc., St Joseph, MO). The experimental  
5 design was completely randomized with 2 diets that consisted in a control diet with 2,750  
6 kcal AMEn/kg and 16.9% of CP (Control) and the same diet supplemented with 50 g of  
7 the postbiotic per ton of feed (AOSO). Each treatment was replicated 18 times and the  
8 experimental unit was a cage with 6 hens. The experiment lasted 24 wk (6 periods of 4  
9 wk each). Egg production and number of broken and shell-less eggs were controlled daily  
10 and feed disappearance and egg weight were measured weekly. Any mortality was  
11 weighed as produced. The proportion of albumen, yolk, and shell of the eggs, shell quality  
12 traits (weight, strength, and thickness), and Haugh units, were measured in all eggs  
13 produced the last 2 d of each of the 6 experimental periods. BW of the hens was measured  
14 at the start of the experiment and at the end of each of the 6 experimental periods. The  
15 experiment consisted of 2 phases: pre-peak (18 to 25 wk of age) and peak production (26  
16 to 41 wk of age). Data were analyzed as a completely randomized design with diet as  
17 main effect using the GLM procedure of SAS. During the pre-peak phase, no differences  
18 were observed for any of the production or egg quality traits studied. In the peak  
19 production phase however, egg mass was greater in hens fed AOSO than in hens fed the  
20 control diet (64.4 vs. 62.7 g/d;  $P < 0.05$ ). Also in this phase, AOSO supplementation  
21 increased egg production (98.2 vs. 96.6%) and egg weight (65.6 vs. 64.9 g), and improved  
22 FCR (1.84 vs. 1.90) but the differences were not significant. Diet did not affect any of the  
23 egg quality traits studied, at any time. For the whole experiment (18 to 41 wk), AOSO

24 supplementation improved all major production traits studied, included egg mass (50.6  
25 vs. 49.7 g/d) and FCR (2.27 vs. 2.32), but the differences were not significant. The  
26 benefits of AOSO supplementation on all the production variables studied were observed  
27 for each period of the peak production phase. Probably, the high level of production of  
28 the control hens reported (over 49.5 g/d), precluded the possibilities of detecting  
29 significant differences between both groups.

30 **Key words:** *Aspergillus oryzae*, egg quality, hen performance, laying hen, postbiotic.

31 **2460 keystrokes (2750 accepted)**