

Effect of BELFEED B 1100 MP on growth performance of Muscovy duck

E. BAEZA ¹, D. BRUYER ², J. FOUQUET ³

¹ *Station de Recherches Avicoles, INRA Tours, 37380 Nouzilly, France*

² *BELDEM SA, 12 rue Bourrie, ZI de Seilles, 5300 Andenne, Belgique*

³ *JEFO EUROPE SA, 6 allée des Sapins, 44483 Carquefou Cedex, France*

In chicken, turkey and laying hen, the benefit of enzyme supplementation to degrade non-starch polysaccharides in diets has been known for many years (Mathlouthi, 2002). The aim of this study was to evaluate the effect of adding BELFEED B 1100 MP, displaying xylanase activity, to diets containing high levels of wheat (50 to 60%) for growing male and female Muscovy ducks.

We used 192 males and 256 females of a heavy line R71 (S.A. Grimaud, Roussay) housed in two rooms. Each room contained 16 pens. Each pen contained 12 males or 16 females reared on slats. In each room, there were three groups: T = control group, EN = group supplemented with 100 g of enzyme per ton of feed, DT = group supplemented with 1000 g of enzyme per ton of feed. Groups T and EN had 6 pens and group DT, 4 pens. Three diets were formulated: starting (0-3 weeks, 2900 kcal ME/kg of diet and 18.5% CP), growing (4-7 weeks, 2900 kcal ME/kg of diet and 17.4% CP) and finishing (8-10 weeks for the females or 8-12 weeks for the males, 2900 kcal/kg of diet and 16.5% CP). Birds were individually weighed at 1, 21, 49 and 70 (females) or 84 (males) days of age. Feed consumption per pen was measured at the same periods. Data were compared using analysis of variance.

Despite a high level of wheat in diets, growth performance was correct (Table). Whatever the sex or age, the body weight of control ducks and ducks supplemented with BELFEED B 1100 MP were not significantly different.

During the starting period (1-21 days), ducks supplemented with BELFEED B 1100 MP exhibited a significantly lower feed conversion ratio than control ducks. For the females this difference was not significant during the following periods. For the males, this difference was also significant during the growing period and the whole rearing period. Jeroch et al. (1995) and Uzu et al. (2003) also showed a positive effect of enzyme supplementation on feed conversion ratio of Muscovy duck during the starting and growing periods. In Pekin duck, this effect was significant for the whole rearing period (Hong et al., 2002; Adeola and Bedford, 2004). For the females, irrespective of the period, the diet supplementation with BELFEED B 1100 MP had no significant effect on feed consumption. During the growing, finishing and whole rearing periods, supplemented males exhibited a lower feed consumption than control males (Table). For the whole rearing period, male ducks of group EN consumed 672 g (8 g X 84 days) less than male ducks of group T. The lower feed consumption and the improved feed conversion ratio suggested a higher nutrient utilization. Jamroz et al. (1998) showed that an enzyme supplementation of triticale-based diets improved nitrogen and phosphorus utilization (+ 6.5 % and + 6.8 % in Muscovy duck; + 4.8 % and + 3.1 % in mule duck). Energy utilization of diets rich in wheat and barley was improved by an enzyme supplementation of growing Muscovy ducks (Uzu et al., 2003). Hong et al. (2002) observed a higher nitrogen and amino acid utilization in Pekin ducks supplemented with enzyme. The mean ileal amino acid digestibility coefficients in diets with enzyme at 0, 0.375 and 0.5 g/kg were 86.94, 88.82 and 88.87 % respectively. In Pekin ducks, Adeola and Bedford (2004) demonstrated that a xylanase supplementation of wheat-based diets (618 to 780 g/kg of feed depending on wheat viscosity and period) improved energy, fat, nitrogen and starch digestibilities.

Table Effect of diet supplementation with BELFEED B 1100 MP: 100 g/ton (group EN) or 1000 g/ton (group DT) on growth performance of male Muscovy duck (mean \pm SEM)

	Group T	Group EN	Group DT	Probabilities		
				TvsENvsDT	TvsEN	TvsEN+DT
1-21 days						
Feed consumption (g/d/duck)	59 \pm 2	58 \pm 1	57 \pm 3	0.463	0.376	0.249
Body weight (g)	856 \pm 116	866 \pm 83	863 \pm 86	0.826	0.562	0.548
Feed conversion ratio	1.53 \pm 0.03	1.49 \pm 0.02	1.48 \pm 0.02	0.006	0.006	0.001
22-49 days						
Feed consumption (g/d/duck)	218 \pm 9	212 \pm 7	205 \pm 5	0.042	0.208	0.039
Body weight (g)	3738 \pm 277	3714 \pm 206	3708 \pm 268	0.785	0.572	0.493
Feed conversion ratio	2.13 \pm 0.04	2.09 \pm 0.06	2.02 \pm 0.04	0.007	0.177	0.024
50-84 days						
Feed consumption (g/d/duck)	231 \pm 4	221 \pm 12	214 \pm 8	0.023	0.072	0.012
Body weight (g)	5451 \pm 424	5382 \pm 429	5443 \pm 419	0.613	0.353	0.496
Feed conversion ratio	4.73 \pm 0.23	4.82 \pm 0.26	4.63 \pm 0.28	0.534	0.565	0.944
1-84 days						
Feed consumption (g/d/duck)	183 \pm 5	175 \pm 6	171 \pm 4	0.013	0.050	0.006
Feed conversion ratio	2.86 \pm 0.07	2.78 \pm 0.05	2.70 \pm 0.07	0.006	0.045	0.008

Diet supplementation with BELFEED B 1100 MP significantly improved the feed conversion ratio during the starting period (1-21 days), the growing period (22-49 days) only for males and the whole rearing period (1-84 days) only for males. This effect could result from an improvement of diet digestibility inducing a decrease of feed consumption. The high level of supplementation with BELFEED B 1100 MP (10 fold the normal dose) had no negative effect on growth performance of birds or their behaviour.

References

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