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## Veterinari Medicina

**Influence of dietary organic acid blend supplementation and interaction with delayed feed access after hatch on broiler growth performance and intestinal health**

Cengiz O, Koksal BH, Tatli O, Sevim O, Avci H, Epikmen T, Beyaz D, Buyukyoruk S,

Veterinari Medicina, 57 (2012): 515-528

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A trial was conducted to investigate the effects of a dietary organic acid blend for a period of 35 days on the growth performance, intestinal histomorphology and microflora of male broiler chicks with delayed access to feed. One hundred and ninety two one day old broiler chicks (ROSS 308) were randomly distributed into 4 groups housed in four replicate pens with 12 birds in each. A 2 × 2 factorial design was implemented. Four experimental groups were formed by two levels of dietary organic acid blend supplementation (Control and Fysal Dry®) and two periods of delayed feed access (0 and 36 h). At 36 h after

hatching body weight and body weight change of chicks were significantly ( $P < 0.001$ ) lower than groups fed immediately after hatching. Delayed feed access had an adverse impact ( $P < 0.001$ ) on the body weight and feed consumption of broiler chickens on days 14 and 28. Between the days 28 and 35 of the feeding period, these differences disappeared. The relative weight of gizzard ( $P < 0.05$ ), pancreas ( $P < 0.01$ ) on day 6 and intestine ( $P < 0.05$ ) on day 10, and gizzard ( $P < 0.01$ ) on day 10 were reduced in birds subjected to delayed feed access. Dietary organic acid blend inclusion increased villus length ( $P < 0.001$ ), whereas delayed feed access decreased villus length ( $P < 0.05$ ) and increased the incidence of epithelial degeneration and basal membrane separation of the propria mucosa of villus in the jejunum. A significant decrease in Enterobacteriaceae count ( $P < 0.01$ ) was noted in organic acid blend supplemented groups on day 25. Pectoral muscle malondialdehyde levels were decreased ( $P < 0.01$ ) with dietary organic acid blend supplementation at day 10. Delayed feed access significantly

heterophil:lymphocyte ratio at day 6. Overall, dietary organic acid blend supplementation helped broiler chicks to develop a healthier intestinal microflora and this may, in turn, inhibit the delayed feed access-induced increase in malondialdehyde in the early growing period. However, the inclusion of organic acid blend to broiler diets may not be a protective management practice in preventing delayed feed access-related growth depression of broiler chickens.

## Keywords:

broiler; organic acid; delayed feed access; growth performance; intestinal health

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