

## Sodium diformate in the starter diet of young broilers improves their performance against negative and positive controls



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**Introduction:** Broiler growth rate and feed efficiency are key to their economic performance through to market. Nutrition plays a crucial role, particularly during the post-hatch period, since healthy gut development affects later performance. Organic acids and their salts have proved especially effective in maintaining growth performance. Previous studies on the antimicrobial impact of organic acids and their salts, including sodium diformate (NDF), placed less emphasis on the starter period. The objective of this experiment was to evaluate the impact of dietary sodium diformate in broiler starter diets until day 21, against both a negative and positive control containing an antibiotic growth promoter (AGP).



**Material and methods:** The objective of this experiment was to evaluate the impact of dietary sodium diformate (traded as Formi NDF, ADDCON) in broiler starter diets until day 21, against both a negative and positive control containing an antibiotic growth promoter (AGP; Trimethoprim-sulphadiazine). A total of 180 one-day old male broilers (Ross 308) were randomly allocated to one of 3 treatment diets with 6 replicates of 10 birds each on a research farm in Iran. Experimental treatments were: negative control; AGP; and 3 kg/tonne NDF. Broiler starter diets were provided as mash feed *ad libitum*. Body weight, feed intake and FCR were recorded and analysed and a confidence level of 95% was defined; whereas ADG and EBI were calculated pooled. The European Broiler Index, (EBI), based on the performance parameters weight gain, feed efficiency and mortality is calculated using the following equation:  

$$\text{EBI} = \text{ADG [g]} \times \text{survival [\%]} / (10 \times \text{FCR})$$

**Results and discussion:** Performance was highly increased in birds fed the dietary sodium diformate at 0.3% (Table 1). The positive control, containing the antibiotic growth promoter as well the dietary acidifier both led to a numerically higher feed intake by between 3% and 4%. However, body weight gain differed only significantly ( $P < 0.05$ ) for the diformate group – and was increased by almost 19% compared to the negative control and by almost 12%, if compared to the AGP-group. Similar impacts were noticed for feed conversion. The FCR was again only significantly ( $P < 0.05$ ) improved in the group with the dietary acidifier – by 13.8% and 11.8% against control and positive control respectively. This may be due to the often-reported impact of acids towards protein digestibility.

**Table 1:** Performance parameters in broilers fed with or without sodium diformate (FORMI® NDF) till 21 days post hatch

	Negative control	Positive control	0.3% FORMI NDF
Feed intake [g]	891	923	918
Body weight gain [g]	514 <sup>a</sup>	546 <sup>a</sup>	611 <sup>b</sup>
Avg. Daily Gain [g/d]	24.5	26.0	29.1
FCR	1.74 <sup>a</sup>	1.70 <sup>a</sup>	1.50 <sup>b</sup>
EBI	141	153	194

Means in a row not sharing the same superscript are significantly different ( $P < 0.05$ )

The results described are in full agreement with previously reported data, which also found a performance enhancing impact of the acidifier in the early life stage of the broiler. There, it was found that the use of 0.15% NDF till 14 days post-hatch led to a significant increase ( $P < 0.05$ ) of the body weight, while the FCR was numerically improved by 3 percent.

It can therefore be concluded that dietary sodium diformate, traded as Formi NDF, plays not only an important role in the nutrition of broilers till slaughter, but can ensure a healthy and optimized performance in the starter period of chicken when gut health is at stake, without the use of prophylactic in-feed antibiotics.