

TECHNICAL INFORMATION

Poultry production in Eastern Europe

FORMI NDF beneficially affects broiler performance till 45 days post-hatch

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Early studies on the impact of dietary organic acids in poultry appeared in the 1980's. Various authors noted improved broiler performance from supplementation with single acids and some organic acid salts, including formic acid, fumaric acid or calcium formate. Formic acid and its various salts are especially well known to improve productivity. Acting against pathogens, they help to decrease pressure on the animal's immune system and thus more nutrients will be available for productive functions such as growth or laying. Their action on the feed matrix provides optimal conditions for digestive enzymes, particularly pepsin, to release more nutrients from the feed. The double sodium salt of formic acid, while having the same antimicrobial properties as formic acid, has become more commonly used in poultry production, as it is easier to handle and does not negatively affect palatability, as can the pure acid. Furthermore, contrary to common acids, sodium diformate (Formi NDF, ADDCON) is available throughout large parts of the gastro-intestinal tract of the bird. Free organic acids, on the other hand, often only show an impact till the stomach – this is especially true for free formic acid. It is therefore no surprise that the new molecule becomes more and more interesting to the sustainable poultry production of the post-antibiotic era.

The benefits of incorporating NDF in broiler diets were demonstrated with a meta-analysis, published at the 19th European Symposium on Poultry Nutrition. Recently, the acidifier has been tested repeatedly in the growing poultry industry in Eastern Europe. One such trial is outlined in this report.

The trial was conducted at a commercial farm in Ukraine. The aim of the trial was to test sodium diformate against a commercial broiler diet containing another acidifier (positive control). Feed and water were available *ad libitum*. 491,000 one day old birds were randomly selected and divided into 2 treatment groups. Birds receiving the NDF-containing diet were fed till day 21 at a dosage of 3 kg/t, while the grower and finisher diets till slaughter contained only 1 kg/t NDF. Throughout the whole trial period, birds from the positive control received diets containing a mixture of formic and propionic acids and their ammonia salts on vermiculite at 1 kg per t of feed. The impact of both treatments on performance parameters of poultry (live-stock viability, live weight and feed conversion) as well as economic parameters (European Efficiency Factor and Cost of feed per gain) was examined. The diets were fed for 45 and 46 days respectively. All data were recorded at the end of the trial (Tab. 1).



Table 1: Performance and economic parameters in broilers fed with sodium diformate (FORMI NDF) or an acid blend

	Positive control (1 kg/t)	NDF (3 / 1 kg/t)	Difference (%)
Number of birds	254,700	236,300	-
Growing period (d)	46.1	45.0	-2.4
Final weight (kg)	2.827	2.858	+1.1
ADG (g)	60.3	62.5	+3.6
FCR	1.98	1.85	-6.6
Mortality (%)	9.7	8.6	-12.8
EEF*	2.80	3.14	+12.2
Cost of feed / 1 kg gain (USD)	0.97	0.90	[-7 cents]

*EEF = European Efficiency Factor = Final weight [kg] × Survival [%] / (FCR × Age [d])

Overall performance in the group with **FORMI NDF** was improved, even when compared to a positive control, containing an acid blend on a carrier. This is not unusual, due to the higher percentage of active ingredients in NDF. The addition of 3 kg/t NDF to the starter diet – and 1 kg/t till slaughter resulted in an increase of 3.6% in weight gain, despite a 1 day shorter growth period. The feed conversion rate was improved by 6.6%. Furthermore, the mortality was reduced by almost 13%. Due to the improvement in these three single most important performance parameters in all animal husbandry, the European Efficiency Factor – a widely used productivity index, was improved by more than 12%. This led to a more cost effective production by almost 7 USD cents.



Conclusions

Numerous reports have demonstrated so far that including FORMI NDF in broiler diets has beneficial effects on performance by lowering bacterial pathogen load and improving nutrient digestibility against negative controls. The study outlined above describes irrefutably that NDF can also contribute to an improved broiler performance when tested against a positive control. These benefits are turned into economic returns – and thus lead to a more productive and therefore sustainable poultry production.

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