

Effects of a blend of sodium diformate and glycerine monolaurate in sow feed during late gestation and lactation on piglet performance until weaning



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Introduction: Sustaining growth rate and optimal feed efficiency in pigs are key to their economic performance through to market. With mounting pressure on the costs of pig production in general worldwide, nutrition is increasingly under scrutiny. The application of organic acids and their salts to diets for pigs has been studied extensively for more than 50 years. They have proved especially effective in maintaining growth performance since the ban on antibiotic growth promoters came into effect in Europe. Several studies have also demonstrated benefits of diformates to diets for sows. However, while the antimicrobial impact of organic acids and their salts, including potassium or sodium diformate, is mainly directed against Gram-negative bacteria, medium chain fatty acids (C-6 to C-12) have been shown to have an antibacterial impact against various Gram-positive bacteria. This effect is magnified if monolaurate is used, making it a promising candidate as an additive or as an alternative to antibiotics for treatment of different diseases. Despite the well documented impacts of both additives, data on the combined impact in sows during late gestation and lactation, and their subsequent effects on suckling piglets under semi-commercial conditions had not yet been generated. This formed the impetus of this trial.



Material and methods: The study tested the efficacy of a blend of sodium diformate with the monoglyceride of lauric acid – monolaurate, in multiparous sows at a research farm in Saxony-Anhalt, Germany. 40 sows were allocated to 2 equal groups and fed a commercial lactation diet from one week before farrowing until weaning. The test diet contained 1.0% of the sodium diformate – monolaurate mixture (traded as FORMI GML, ADDCON). The lactation diet was fed according to a feeding curve, from the last week before farrowing to day 13 of lactation and thereafter *ad libitum*. All piglets were weighed at birth and weaning and their performance parameters recorded. Data were analysed using the t-test and a confidence level of 95% was defined for these analyses.

Results and discussion: The number of piglets born alive, the weight of new-born piglets and the litter weight at birth were significantly ($P<0.05$) increased (Table 1), while the number of weaned piglets differed only numerically ($P=0.11$). At weaning, the body weight of piglets as well as the litter weight were again significantly improved ($P<0.05$). Here, piglet weight was more than 500 g greater and litter weight more than 8 kg heavier in the treated group compared to the negative control, while weaning age did not differ (25.7 days).

Table 1: Performance data of piglet from sows fed a lactation diet with or without FORMI® GML

	Control	1.0% FORMI®GML in sows	P-value
Piglets born alive, per sow [n]	16.4±2.8	18.0±2.8	0.042
Weight of new-born piglets [kg]	1.20±0.14	1.33±0.22	0.018
Litter weight at birth [kg]	19.56±3.26	23.67±3.85	0.001
Piglets weaned, per sow [n]	11.95±0.59	12.25±0.89	0.11
Weight of weaned piglets [kg]	6.91±0.62	7.41±0.68	0.011
Litter weight at weaning [kg]	82.44±7.58	90.78±10.40	0.004

In general it can therefore be stated that the above findings support the use of dietary sodium diformate and monolaurate in sows as a performance enhancer for suckling piglets.

