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Dietary sodium diformate in sows during late gestation and lactation: performance improvements in suckling piglets under European conditions



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Introduction

The application of organic acids and their salts to diets for pigs has been studied extensively for more than 50 years. Despite its well-documented effects, data on its impact in sows during late gestation and lactation, and their subsequent effects on suckling piglets under commercial conditions is scarce.

Materials and methods

This study tested the effects of sodium diformate (Formi NDF, ADDCON) fed to sows on their suckling piglets. 20 sows (Landrace × Big Yorkshire) on a commercial farm in Eastern Europe were equally divided into two groups, containing 10 sows each. They were fed from one week before farrowing till the end of weaning (day 27) on a typical lactation diet (corn-wheat-soy based), containing either 0.8% of NDF, or a negative control which did not contain the additive. The lactation diet was fed *ad libitum* and daily feed intake measured. The following parameters were monitored: litter weight of new-born piglets, the nursing mortality, the number of weaned piglets, the individual body weight of weaned piglets and the litter weight during weaning. Data were analysed using the t-test and a significance level of 0.05 was used in all tests.



Results and discussion

Feed during the trial was well accepted by both groups. Sows fed the NDF-diet had a noticeably higher feed intake compared to sows from the negative control group (+460 g/day, Table 1). During farrowing the litter weight of piglets at birth differed significantly ($P<0.01$) by more than 5.5 kg, for the NDF-fed sows. Furthermore, uniformity of piglet and litter weight was improved. During weaning at day 27, the number of weaned piglets differed significantly (10.5 and 11.5 for Control- and NDF-group; $P=0.03$), due to a higher mortality during nursing in the control-group ($P<0.1$). The weaning weight of the piglets was only numerically influenced (60 g heavier piglets in the NDF-group). However, due to the increased number of weaned piglets, the litter weight during weaning of NDF-fed sows was also higher ($P<0.1$) by more than 8.6 kg. Again, uniformity of piglet and litter weight was improved, leading to a better manageable pig production.

Table 1: Performance parameter of piglet from sows fed with or without sodium diformate (Formi NDF)

Parameter	Control (n=10)	0.8% NDF (n=10)	P-value
Daily feed intake sow [kg]	3.69	4.16	*[+0.46 kg]*
Litter weight at birth [kg]	15.90±5.21	21.44±3.69	*0.009*
Nursing mortality piglets [n]	1.2±1.33	0.5±0.81	*0.096*
Piglets weaned, per sow [n]	10.5±1.2	11.5±0.8	*0.027*
Weight of weaned piglets [kg]	8.31±0.94	8.37±0.66	*0.45*
Litter weight at weaning [kg]	87.70±16.08	96.35±11.29	*0.102*

As previously reported for potassium diformate, it can be also concluded from this study, that the inclusion of sodium diformate to the lactation diet of sows acts as a performance enhancer for suckling piglets under commercial conditions in Europe.