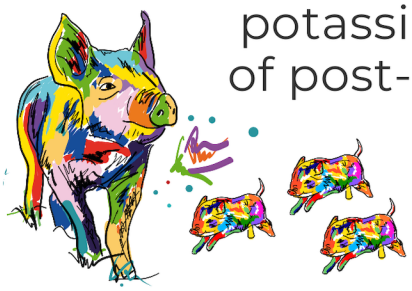
Comparison of benzoic acid and potassium diformate on the performance of post-weaning piglets: a review



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Introduction:

This review investigates the average impact of potassium diformate (FORMI, KDF) and benzoic acid (BA) on post weaning piglet performance. Both additives are registered as zootechnical additives for pigs in the EU. FORMI however was the first organic acid salt to be approved as a non-antibiotic growth promoter in pig feed in the European Union, where it has been shown to improve growth performance and feed efficiency in pig production in numerous efficacy trials. This study analyzes the average impact from all data on the usage of both additives on the performance parameters feed intake, weight gain and feed efficiency from commercial and academic trials.

Materials and methods:

The final data-set contains the results of 4 documented studies, comprising 5 trials with KDF and BA-inclusion in piglets, at inclusion rates ranging from 0.5% to 1.2%. These studies were carried out between 2002 and 2014 in Denmark, Germany, Brazil and France under both commercial and institutional conditions and included more than 8762 pigs. The data were statistically analysed and a $P<0.05$ value was considered significant.

Results:

The average level of dietary KDF from the data-set in all treated pigs was 1.0%, whereas the BA-inclusion averaged at 0.8%. Feed intake in the FORMI-fed piglets was significantly increased by 5.1% ($P=0.03$) over the BA-inclusion (Table 1). Furthermore, weight gain in the KDF-piglets was also significantly improved (7.7%; $P=0.003$), along with a better growth uniformity. Finally, a numerically improved feed efficiency in the FORMI-piglets over BA-fed animals by 2% was noticed.

Table 1: Average impact (Meta-analysis) of potassium diformate (FORMI) and benzoic acid (BA) on piglet performance

	Feed intake [g/d]	Weight gain [g/d]	FCR	
	BA FORMI	BA FORMI	BA	FORMI
Mean value	567 596	365 393	1.53	1.50
SD	146 140	4740	0.24	0.23
P-level	0.030	0.003	0.144	

Conclusion:

These results show that the inclusion of FORMI can enhance performance in piglets, even if compared against a positive control (benzoic acid), which is in full agreement with data obtained in Asia from Jang et al., demonstrating furthermore that the additive is a valuable tool in reducing reliance on antibiotic growth promoters.