Effects of dietary potassium diformate on growth and gastrointestinal health in weaned piglets in Vietnam

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Introduction: Organic acids have been used for decades in commercial compound feeds, mostly in feed preservation. Experience has shown that acidifiers are the most reliable product group of the non-antibiotic growth promoters available in Europe and can also be used safely and effectively with other additives. Potassium diformate (KDF) is currently the only acidifier which can legally claim performance enhancing effects in the whole pig production chain, thus covering sows, piglets and fatteners. The current study tested the efficacy of KDF under tropical conditions.

Material and methods: Seventy eight 28-day old weaned piglets with an initial weight ranging from 8.0 to 8.3 kg, of the same sex and breed, were allocated to 3 equal groups with 26 piglets each. Piglets were kept at an experimental farm in Southern Vietnam for 28 days, receiving a commercial diet from 28 to 50 days of age with 19% crude protein (CP) and 3100 kcal/kg metabolisable energy (ME), while from day 50 onwards till the end of the trial (56 days of age), a diet containing 20.8% CP (3000 ME kcal/kg) was fed. Diet 1 contained no additive and served as negative control, while diets 2 and 3 contained 0.4% and 0.5% KDF respectively. Feed and water were available ad libitum. At the end of the trial, final weight, daily weight gain, feed conversion and the diarrhoea rate of piglets, as well as pH-data from the gastro-intestinal tract were obtained and analysed statistically using ANOVA.

Results and conclusions: The final weight of the piglets fed 0.4% and 0.5% KDF was significantly increased compared to the control ($P<0.05$) – Table 1. The lowest KDF inclusion improved the final weight compared to the control by more than 11%. Furthermore, a numerical improvement of the feed conversion ratio of at least 15% was monitored. Finally, the overall days of diarrhoea per group were significantly reduced with the KDF treatments from 40 days (control) to only 25 and 21 days, respectively.

Table 1: Performance parameter of piglets fed with or without potassium diformate (KDF)

	Control	0.4% KDF	0.5% KDF
Piglet [n]	26	26	26
Final weight [kg]	17.04±1.81^{a}	18.96±1.57^{b}	19.96±2.83^{c}
Avg. daily weight gain [g d^{-1}]	321	381	411
FCR	1.84	1.56	1.46
Total days of diarrhoea [d]	40	25	21
Diarrhoea rate [%]	5.5^{a}	3.4^{a}	2.9^{b}

Means within a row having different superscripts are significantly different from each other ($P<0.05$)

The findings of the present study support the use of dietary KDF as an effective and sustainable growth-promoter in post-weaned piglets. Current findings suggest that KDF can be used to enhance growth and reduce post-weaning diarrhoea.