



The best things since sliced bread – product combinations for weaning piglets.

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Key conclusions

- ✓ **A combination of Formyl™, ButiPEARL™ and CLOSTAT® was tested against another zinc oxide alternative**
- ✓ **The Kemin solution showed nice results, analogue to the previous trial against zinc oxide.**

Introduction

Zinc oxide in piglets and current alternatives

In many European and neighbouring countries zinc oxide (ZnO) is currently licensed up to the level of 2,500 mg/kg zinc for 14 days post-weaning, but alternatives are desperately sought after as the licence is due to expire (compare TL-18-00090). Even in countries where still permitted many large companies have already applied alternatives. This was the case with a Hungarian customer, who switched to an organic acid based solution, while optimising the diets for low buffering capacity. This happened at the same time as testing a Kemin solution for zinc oxide replacement. The customer was interested about different approach from Kemin and agreed to a trial of the competitor solution versus the Kemin solution.

The current solution (acids, low dABC)

The competitive solution was a not precicely defined blend of organic acids as 10 kg of free organic acid and 5 kg of Ca salt of formic and lactic acid per ton of feed. Compared to the original zinc-oxide containing diets dABC had been lowered by reformulation as well.

The Kemin alternative solution (slow release, active microbial, low dABC)

The Kemin alternative used the same basic diet. But replaced the acid and acids salts as follows. Slow release butyrate (ButiPEARL™) was used to ensure gut integrity and villous health. To manage the microbiome, which undergoes a drastic change at weaning, two approaches were chosen. First a probiotic (CLOSTAT®) to promote and maintain the natural positive gut flora and minimise the risk posed by Clostridia, an emerging problem in unmedicated piglets. Secondly to avoid neutralisation of organic acids after the stomach passage a protected form of organic acids (Formyl™) was included in the solution. Organic acids have been shown to be effective against *E.coli*, but to do so they have to arrive in the small intestine without interference of increased bile salt production.

Piglet trials

Materials and Methods: Setup of the zinc oxide replacement

The trials were performed in commercial trial units of AGROFEED Kft. at Lovászpatona in Hungary based on their reformulated (low dABC) diets. The piglets had a standard diet that consisted of a Pre-Starter (preparative period) from approximately 7.5 kg (for 15 days) and a starter (experimental period) being fed from an average of 10.5-11 kg for 32 days. Weaning was routinely done at the age of 26 days. The trial was repeated twice with equal group sizes for the current solution and Kemin solution groups respectively. The first trial (trial 1) was run from start of February with 158 piglets, the second set from middle of February (trial 2) was an exact repeat of trial 1 with 160 piglets.

The current solution was a not precicely defined blend of organic acids as 10 kg of free organic acid and 5 kg of Ca salt of formic and lactic acid per ton of feed.

The Kemin alternative solution was based on Formyl, ButiPEARL and CLOSTAT.

These we used in lieu of the acids. Inclusion rates were 1kg ButiPEARL, 4kg Formyl per ton as well as 2×10^8 CFU/kg CLOSTAT in the starter feed.

Objective of the trial

Both formulations the current solution and the Kemin solution had proven to be able to compensate for the removal of zinc oxide. The questions in this trial was to test Kemin concept based on protected organic acid and compare with high amount of free acid low (dABC) diet and check them to each other under controlled conditions.

Results

Figure 1: Average body weight at start and phase ends

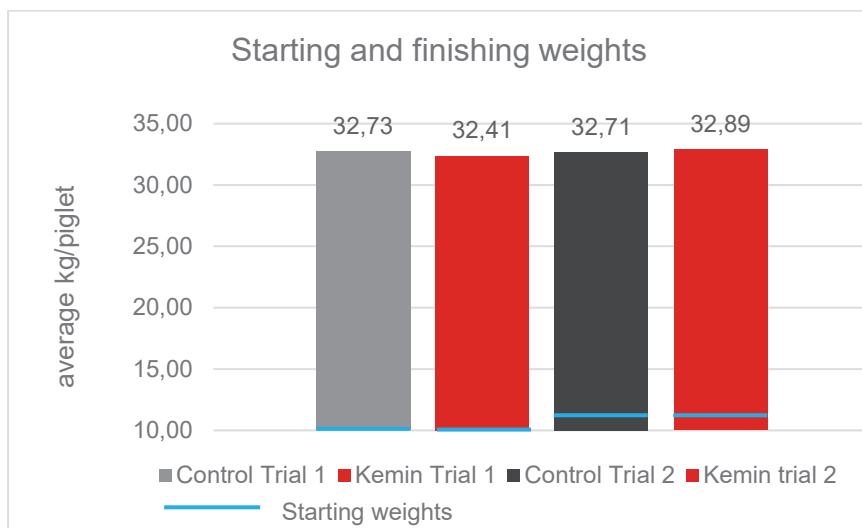


Table 1 key economic parameters of the trial

	Control, Trial 1	Kemin Trial 1	Control Trial 2	Kemin Trial 2
Starting number of piglets	79	79	80	80
Mortality (n)	0	0	2	0
Average initial weight (kg)	10.67	10.40	11.05	10.96
<i>Difference</i>		-0.27		-0.09
Fattening weight corrected for mortality (kg)	1743	1738.4	1696.5	1754
Average finishing weight (kg)	32.73	32.41	32.71	32.89
<i>Difference</i>		-0.32		+0.18
Daily average feed intake (kg/piglet/day)	1.03	0.98	0.97	0.98
Average daily gain (g)	689	687	675	685
Feed conversion ratio (kg/kg)	1.490	1.431	1.442	1.426
<i>Difference</i>		-0.059		-0.016

Trial one started on the 1st of February and ran for 32 days. Trial 2 was started on the 15th of February and also ran for 32 days. Feed was slightly more expensive for the Kemin solution (ca. 0.01 Euro/kg) but that was compensated by improved FCR in both trials.

Trial two had some slight diarrhoea issues. These occurred in both groups. To avoid more severe disease Lincospectin was given to both the Kemin and control group from the 18th to the 20th of February.

Discussion

The trial was successful and proved that after weaning it is not necessarily needed to use free organic acids. The combined solution with protected organic acid as antimicrobial product can perform even better in FCR as the low dABC diets without zinc oxide. Both the current solution, based mainly on free organic acids and salts, and the Kemin solution led to a successful weaning period. The advantage of using protected acids may be that appropriate level of own hydrochloric acid production will develop faster and this leads to better digestion and health status.