



OptiPhos® Plus CT shows high dig. P matrix values at 500 and 1000 FTU/kg

Trial description

1 Set-up

- **Location:** Zootechnicum, Bocholt, Belgium
- **Trial date:** April – August 2019
- **Animals:** Pietrain x Topigs 20 piglets mixed-sex balanced over pens; set-up in 3 rounds of 80 piglets divided over 8 pens at each set-up.
- **Feeds:** two feeds (Table 1, wheat/barley/corn/soy based; pelleted at 75-80°C):
 - **Weaner feed:**
 - Positive control: 7.5 g/kg Ca, 6.2 g/kg total P and 3.5 g/kg dig. P
 - Negative control: 6.0 g/kg Ca, 4.4 g/kg total P and 2.0 g/kg dig. P
 - **Starter feed:**
 - Positive control: 7.5 g/kg Ca, 6.5 g/kg total P and 3.5 g/kg dig. P
 - Negative control: 6.0 g/kg Ca, 4.7 g/kg total P and 2.0 g/kg dig. P

2 Treatments

- Positive control
- Negative control
- Negative control + OptiPhos® Plus CT at 500 FTU/kg
- Negative control + OptiPhos® Plus CT at 1000 FTU/kg

3 Measurements

- Technical performance (body weight & daily gain (individually per piglet), feed intake & feed conversion (per pen)).
- Digestibility: at 5 weeks post weaning, faecal samples were rectally collected, pooled per pen, dried and analysed for total P, crude protein and Ca in order to determine their digestibility.

Table 1: Feed composition and analysis (g/kg)

Feedstuff	Weaner (0-14d)		Starter (14-42d)	
	Positive control	Negative control	Positive control	Negative control
Wheat	203	219	261	276
Barley	300	300	300	300
Corn	150	150	150	150
Soybean meal HiPro	125	121	165	162
Sunflower meal (HP)	50	50	60	60
Lime fine	5.1	4.8	11.3	11.1
MCP	10.9	3.0	12.2	4.2
TiO ₂ (digestibility marker)	0.0	0.0	4.0	4.0
Others*	157	152	45.7	45.7
Nutrients				
Crude protein	184	184	180	180
Ash	53	45	59	51
Dig. Lys	11.5	11.5	10.5	10.5
Ca	7.5	6.0	7.5	6.0
P total	6.2	4.4	6.5	4.7
Dig P	3.5	2.0	3.5	2.0
NE Pigs (Kcal/kg)	2476	2476	2401	2401

* Salt, NaHCO₃, synthetic amino acids, Ca formate, potato protein, whey powder (sweet), soybean oil and vitamin/mineral premix

Results

- Adding OptiPhos® Plus CT at 500 FTU/kg to the negative control feed improved performance significantly (+0.77 kg higher end weight vs the negative control). Increasing the dosage to 1000 FTU/kg resulted in an additional 0.65 kg higher end weight. This end weight was 0.32 kg more than the piglets of the positive control (Fig. 1).
- The Ca and P digestibility increased significantly by adding 500 or 1000 FTU/kg (Table 2). OptiPhos® Plus CT at 1000 FTU/kg yielded a 5.1 % higher P digestibility vs the 500 FTU/kg inclusion level ($P < 0.05$). A small positive effect on protein digestibility was measured.
- Based on the dig. P, Ca and protein values measured, and considering the feed intake and the levels of these nutrients in the feed, it could be calculated that OptiPhos® Plus CT at 500 and 1000 FTU/kg equals respectively
 - 1.17 and 1.41 g/kg dig. P
 - 0.85 and 1.03 g/kg dig. Ca
 - 2.32 and 1.80 g/kg dig. protein

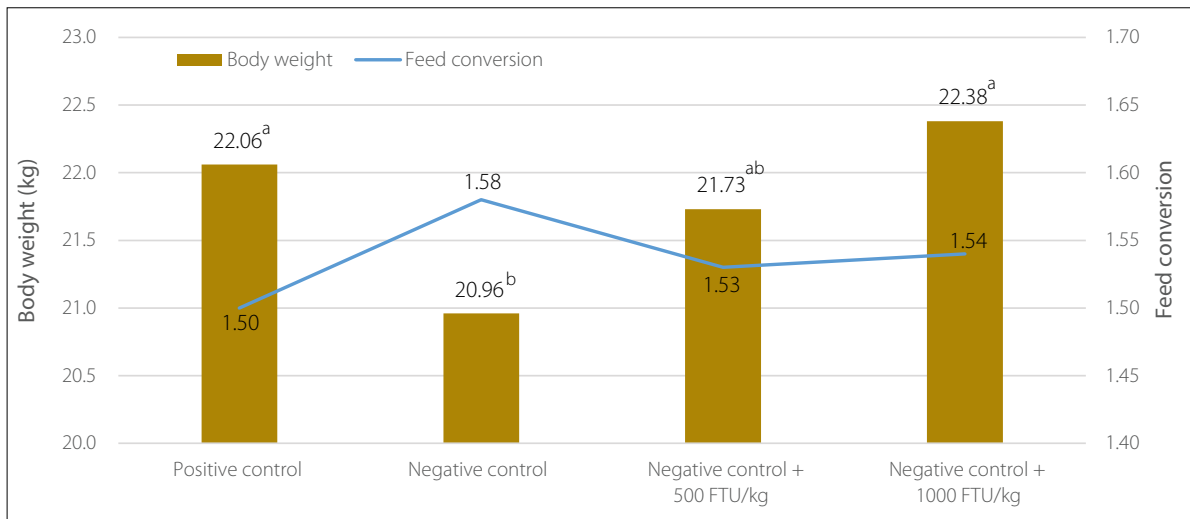


Fig.1: Effect on body weight and feed conversion at day 35 (a,b,c: values followed by a different superscript are sign. diff $P < 0.05$)

Table 2: Response of OptiPhos® Plus CT on tibia weight, tibia percentage

	P	Ca	Protein
Positive control	44.9 ^b	52.7 ^c	79.3
Negative control	33.8 ^c	58.8 ^b	79.5
Negative control + 500 FTU/kg	58.7 ^b	71.3 ^a	80.8
Negative control + 1000 FTU/kg	63.8 ^a	73.9 ^a	80.5

a,c: values in a row followed by a different superscript are sign. diff $P < 0.05$

Conclusion

It can be concluded that OptiPhos® Plus CT added at 500 and 1000 FTU/kg to a P and Ca deficient feed brought performance back to the positive control, showing a dig. P effect of 1.17 and 1.41 g/kg feed, respectively.