

Weaning piglets without prophylactic use of antibiotics is facilitated by dietary SDPP.

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Introduction: Transient anorexia and abrupt deprivation of lactogenic bio-active compounds are major factors in the multi-factorial etiology of diarrhea and/or transient weight dip following weaning¹. Dietary spray-dried porcine plasma (SDPP) stimulates post-weaning feed intake in piglets and is an alternative source of immunoglobulins and other glycoproteins present in sow's milk². The production process of HAT-SDPP includes an additional anti-viral treatment in which plasma is treated at pH 10.2 and 48°C for 10 min., but effects of dietary HAT-SDPP on piglet performance have not been evaluated yet. The aim of this study was to evaluate the effect of SDPP and HAT-SDPP on post-weaning piglet performance under conditions of absence of prophylactic use of antibiotics. We hypothesized a considerable incidence of post-weaning diarrhea and impaired performances in control piglets.

Material and methods: In two trials, 18-day-old piglets were housed in pens per 10 piglets for 6 weeks. Pens were randomly assigned to one of two dietary test groups in which extruded soy in control diets was partially replaced by SDPP or HAT-SDPP on an iso-nitrogenous and iso-caloric basis (Table 1). Technical performances and incidence of diarrhea were recorded.

Table 1. Dose (%) of SDPP or HAT-SDPP in test diets of Trial 1 and Trial 2.

Feeding Phase		Trial 1 (winter, N=8)		Trial 2 (spring, N=6)	
		Control	SDPP	Control	HAT-SDPP
Pre-starter	(wk 1 + 2)	0%	3%	0%	4%
Starter	(wk 3 + 4)	0%	0%	0%	2%
Grower	(wk 5 + 6)	0%	0%	0%	0%

Results and discussion: Post-weaning diarrhea was not observed. Still, mortality was high in Trial 1, where, surprisingly, it seemed that mortality was reduced by dietary SDPP. Pre-starter and cumulative mortality in Trial 1 were 7.5% and 15.0% in control pens but only 2.5% and 8.8% in SDPP pens ($p > 0.050$). The main autopsy finding was purulent broncho-pneumoniae. Dietary SDPP (Trial 1) and HAT-SDPP (Trial 2) resulted in a significant increase of pre-starter average daily feed intake (ADFI) compared to the controls (Trial 1: ADFI +27%, Trial 2 ADFI +25%, $p < 0.001$). Incidence of pre-starter weight dip was 50% lower in SDPP and HAT-SDPP groups compared to the controls ($p > 0.050$). In Trial 2, performances were measured weekly. This trial demonstrated that effects of HAT-SDPP were most pronounced during the first week post-weaning, where a significant ($p < 0.001$) improvement was noticed in ADFI (+31%), average daily gain (+70%) and incidence of weight dip (-70%), compared to the control.

Conclusion: Current data demonstrate that dietary HAT-SDPP, likewise SDPP, enhances post-weaning ADFI and reduces the incidence of a transient post-weaning weight dip in piglets. Mortality data in Trial 1 suggest an overall improved health status in SDPP-fed piglets throughout the weaning phase. Absence of prophylactic antibiotics did not result in diarrhea.

References: ¹Campbell JM, Polo J, Russell LE, Crenshaw JD. (2010). Review of spray-dried plasma's impact on intestinal barrier function. *Livest Sci* 133, 239–241.; ²Torrallardona D. (2010). Spray dried animal plasma as an alternative to antibiotics in weanling pigs: a review. *Asian-Aust J Anim Sci* 23, 131-148.