



TECHNICAL REPORT

by Groupe Cérés and Nutrition Athéna



IMPACT OF BLOOD PLASMA ON PERFORMANCE OF PIGS DURING THE NURSERY PHASE

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Blood plasma is well recognized for being an excellent source of protein and energy in feeds formulated for weaned piglets. Because of its excellent nutritional profile and its immunoglobulin content, it is generally accepted that blood plasma increases feed intake and growth in early weaning by improving gut health and stimulating the immune system of the piglet. On the other hand, the use of blood plasma, especially from porcine sources, has been questioned over the last 4-5 years regarding the potential risk, although not clearly defined, for PEDv transmission. As of today, a large majority of nursery feed program are formulated with an alternative source of high-quality protein in order to replace the use of blood plasma. The question

is whether the blood plasma can still be considered in some specific swine formulation situations, such as feeding piglets with a health challenge.

In fact, we ran a trial on challenged pigs (in this case with Porcine Reproductive & Respiratory Syndrome (PRRS)) and measured a significant improvement in performance and a reduction in mortality (table 1). The overall average daily gain (ADG) was improved by 4.28%, the feed efficiency (FE) by 0.69% and mortality reduced by almost 40% when plasma was fed to these PRRS affected piglets. In this trial, a net margin of \$1.49/piglet was generated by the use of blood plasma.

Table 1: Effect of Blood Plasma Supplementation in PRRS Challenged Piglets (plasma fed 21 days post-weaning)

Start weight	5.98	6	
	Plasma	No plasma	Difference (%)
ADG (week 1)	135	128	+5.47
ADG (week 2)	429	406	+5.67
ADG (week 3)	400	355	+12.68
ADG (week 4)	523	530	-1.32
ADG (0-7 weeks)	463	444	+4.28
FE (0-7 weeks)	1.45	1.44	+0.69
End weight	28.52	27.74	+2.81
Dead/cull %	4.38	7.29	-39.92

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Therefore, being able to maintain overall growth rate with lower energy diet and without plasma, proves the fact that feeding pig with no health challenge can be done without the use of plasma. FE was reduced by only 2.56% for non-plasma-fed piglets, while dietary energy was about 4% lower in the first 5 weeks of the trial. The mortality rate was very low for both groups. Our economics for this trial have shown that the use of

plasma on a healthy group of pigs led to an increase in feed cost of \$0.50/head. It is also important to note that the source of the plasma used for this trial was derived from porcine plasma, which is significantly cheaper than bovine plasma.

Table 2: Effect of Blood Plasma Fed to "Healthy" Piglets (Plasma Fed 21 Days Post-Weaning)

Start weight	6.72		Difference (%)
	Plasma	No plasma	
ADG (weeks 1-3)	435	410	+6.10
ADG (weeks 4-7)	690	698	-1.15
ADG (weeks 0-7)	578	572	+1.05
FE (0-7 weeks)	1.52	1.56	-2.56
End weight	34.61	34.30	+0.90
Dead/cull %	1.23	0.62	-50.40

CONCLUSION

The decision to either use or not use plasma in a nursery feeding program cannot always be clear. For some, the use of plasma or any other source of animal protein is unacceptable due to some market-specific pork program and/or because of their belief in its potential risk for PEDv infection transmission. For others, use of porcine plasma is not acceptable, but the use of bovine plasma, due to the absence of risk of PEDv can be accepted.

In our case, we have been successfully feeding pigs without any plasma nor any other animal proteins since 2005 with our partner HyLife in Western Canada. Since 2013-2014, when PEDv started to hit in the USA and Canada, we have started to use plasma-free diet with most of our customers. The use of a feeding program with plasma from bovine sources was

maintained at the request of some customers and production systems.

With the trials (5) we have done over the years looking at a diet with or without plasma, we are convinced that we can successfully feed pigs with plasma-free diets. On the other hand, in some specific situation where we are facing health challenges (mostly related to PRRS) and/or lower weaning age/weight (16-18 days <5.5 kg), the use of a program with plasma can be beneficial.

Your swine feed specialist and veterinarian should be your first line of contact to help you choose the best fit between a plasma or a plasma-free ration for your weaned piglets.