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**Provision of immunoglobulins to suckling piglets
can enhance
post-weaning growth performance**

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Boonkasem Vanavichial

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ABSTRACT

In this experiment the hypothesis that providing a supplementary source of bovine milk immunoglobulin G (IgG) to suckling piglets increases post-weaning growth performance was tested.

The litters from eight multiparous Large White x Landrace sows received oral supplements by syringe. Three piglets in each litter received oral doses of whey globulin concentrate (WGC) which contained 6% IgG. A second group of three piglets per litter received oral doses of whey protein isolate (WPI) to approximate the amino acids supplied in WGC but without IgG's. A third group of three piglets per litter received oral doses of water (CONT) to simulate the oral dosing procedure. The daily supplement of WGC and WPI provided 0.7 g per day of age of ideal protein during the first week and 1.4 g per day of age thereafter. The oral doses were provided twice daily at 09.00h and 15.00h from day 2 to day 24 of lactation. For the statistical analysis, a linear model including sex, sow and treatment as fixed effects, and live weight at birth as covariate was fitted to the data.

The average daily gains measured over the suckling period (24d) were not statistically significantly different between the three groups with the control gaining 249gd^{-1} , WGC gaining 259gd^{-1} and WPI gaining 264gd^{-1} . The provision of either WGC or WPI did not increase the average daily gain up to weaning, possibly because the piglets reduced their intake of sow's milk. To determine the effect of supplemental IgG, the most valid comparison is between WPI and WGC because the supply of ideal protein, and the time taken to provide each oral dose, were similar. Piglets receiving WGC grew 12% faster than WPI from transfer (62d) to slaughter (85kg) ($P < 0.05$), and 8% faster from birth to slaughter ($P < 0.05$). These findings indicate that the provision of IgG during early life can lead to long term advantages in growth rate.

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LIST OF ABBREVIATIONS

ADG	Average daily gain
ADGT	The total gain of body weight
d	day
DE	Digestible energy
FCE	Feed conversion efficiency
g	gram
gd ⁻¹	gram per day
GE	Gross energy
GLM	General Linear Models procedure
h	hour
Ig's	Immunoglobulin's
IgA	alpha chains
IgD	delta heavy chains
IgE	epsilon chains
IgG	gamma chains
IgM	mu chain
kg	kilogram
kJ	Kilojule
LSM	Least square means
M	Maintenance
n	number of pig
NZ	New Zealand
R ²	Coefficient of variation
SAS	Statistical Analysis System
SE	Standard error
USA	United State of America
WPI	Hydrolysed whey protein isolate
WGC	Whey globulin concentrate