

# HIGH PHYTASE SUPPLEMENTATION LEVELS IMPROVE PERFORMANCE IN PIGLETS FED P-ADEQUATE DIETS

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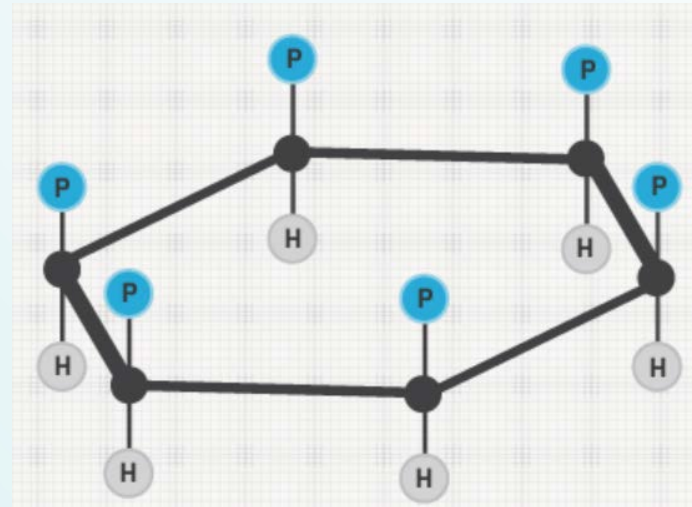
# WHAT IS PHYTATE?

## Hexainositolphosphate (IP6)

The **main phosphorus (P) store** in plants, present in most feed stuffs

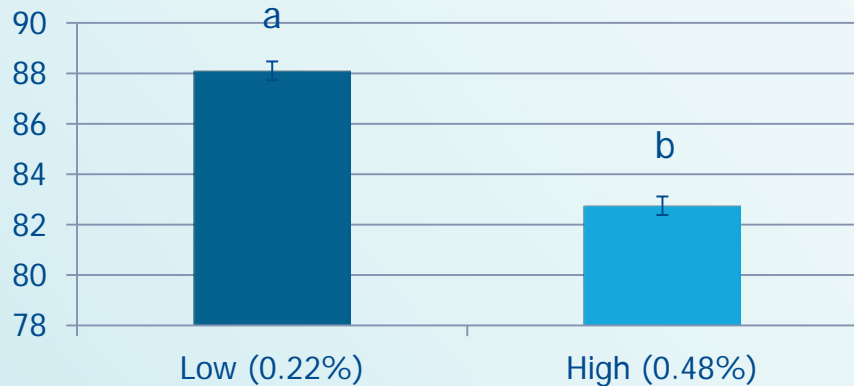
**Possible source of P** for poultry and swine, but monogastrics are inefficient at hydrolysing phytate, which means that the **phytate P is unavailable**.

**Binds with other minerals and proteins**, rendering them unavailable

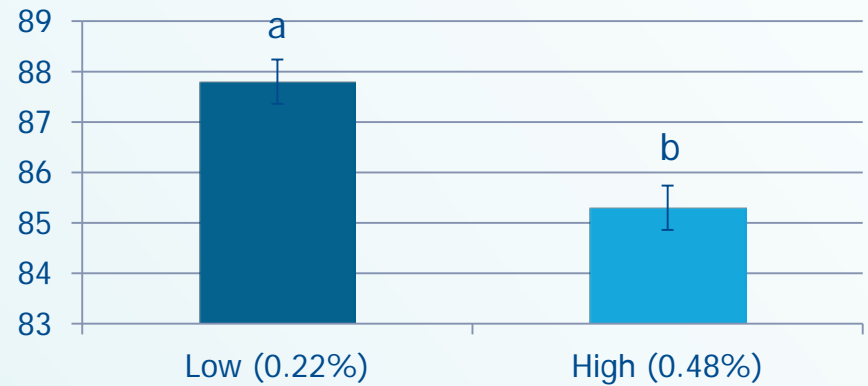


# PHYTATE REDUCES ENERGY AND PROTEIN DIGESTIBILITY IN PIGLETS, IMPACTING ADG AND G:F

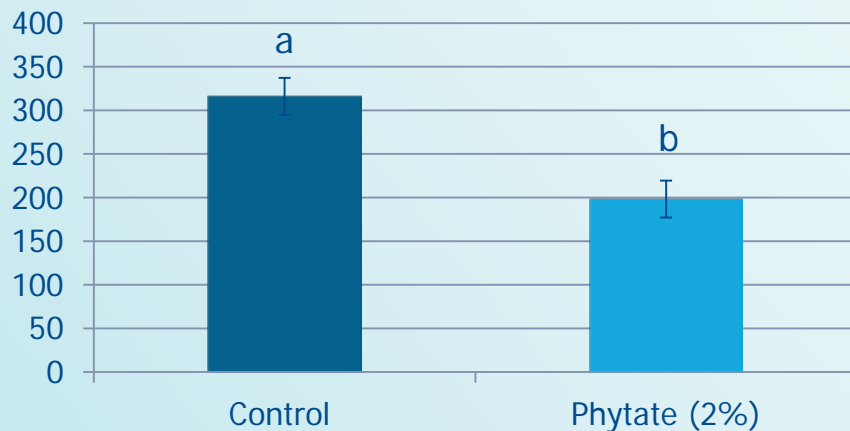
## Apparent faecal energy digestibility (%)



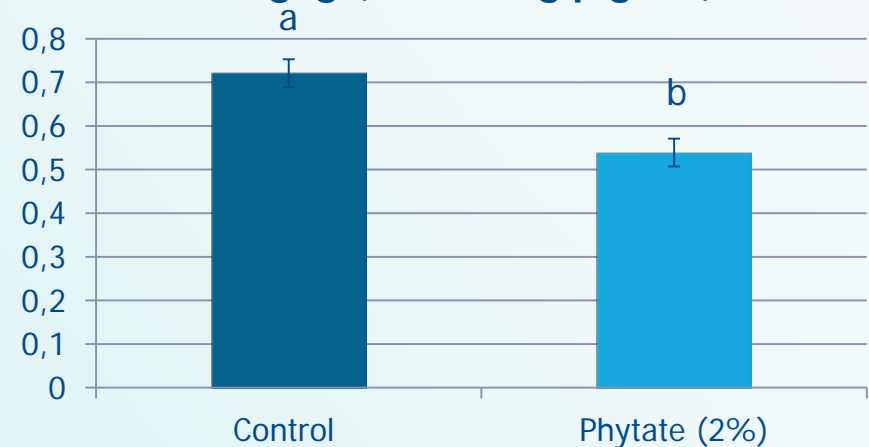
## Apparent faecal crude protein digestibility (%)



## ADG, g (7 to 12 kg piglets)



## G:F, g/g (7 to 12 kg piglets)



# HYPOTHESIS

- By **eliminating** the **anti-nutritive effects** of **phytate**, high doses of **phytase (superdosing)** could **improve the performance** of **piglets** fed a P-adequate diet

# DESIGN

- 88 weaned piglets, mean initial weight 6.1 kg
- 11 pens of 4 pigs per diet
- 2 diets
  1. Control (nutrient adequate)
  2. Control + 2,500 FTU/kg Quantum® Blue (enhanced *E. coli* 6-phytase)

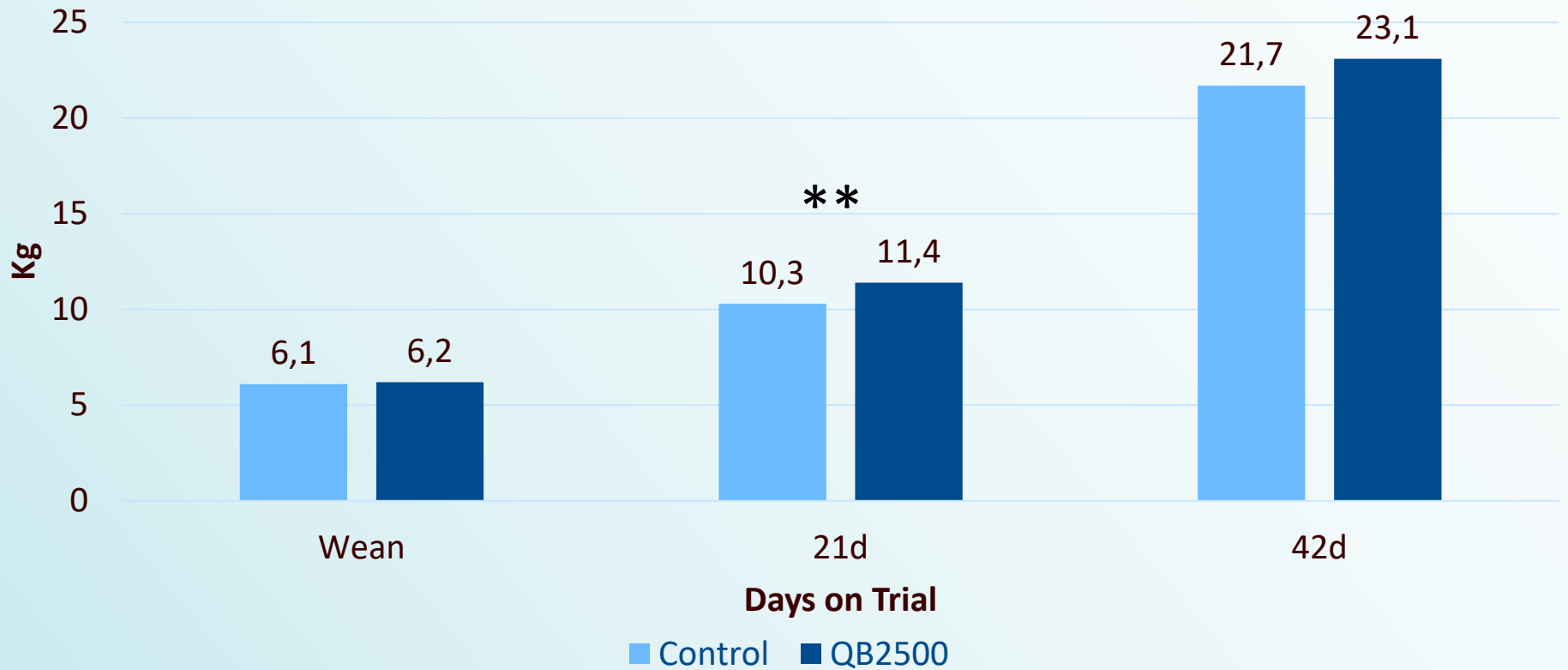
# DIETS

<b>Ingredients (kg/t)</b>	<b>P1 (d 1-7)</b>	<b>P2 (d 7-21)</b>	<b>P3 (d 21-42)</b>
Corn	39.1	48.7	58.1
Soybean meal-48%	17.5	25.0	30.0
Fishmeal	7.50	3.75	3.65
Whey	20.5	10.6	-
Soy protein concentrate	9.70	4.90	0.99
White grease	3.90	4.40	3.65
Phytase (FTU/kg)	0/2500	0/2500	0/2500
ME (MJ/kg)	14.8	14.7	14.3
Crude protein (%)	24.1	22.3	19.9
Ca (%)	0.79	0.79	0.71
Digestible-P (%)	0.45	0.40	0.39
Phytate-P (%)	0.16	0.19	0.26

# NURSERY PERFORMANCE

(WEAN TO 42 D)

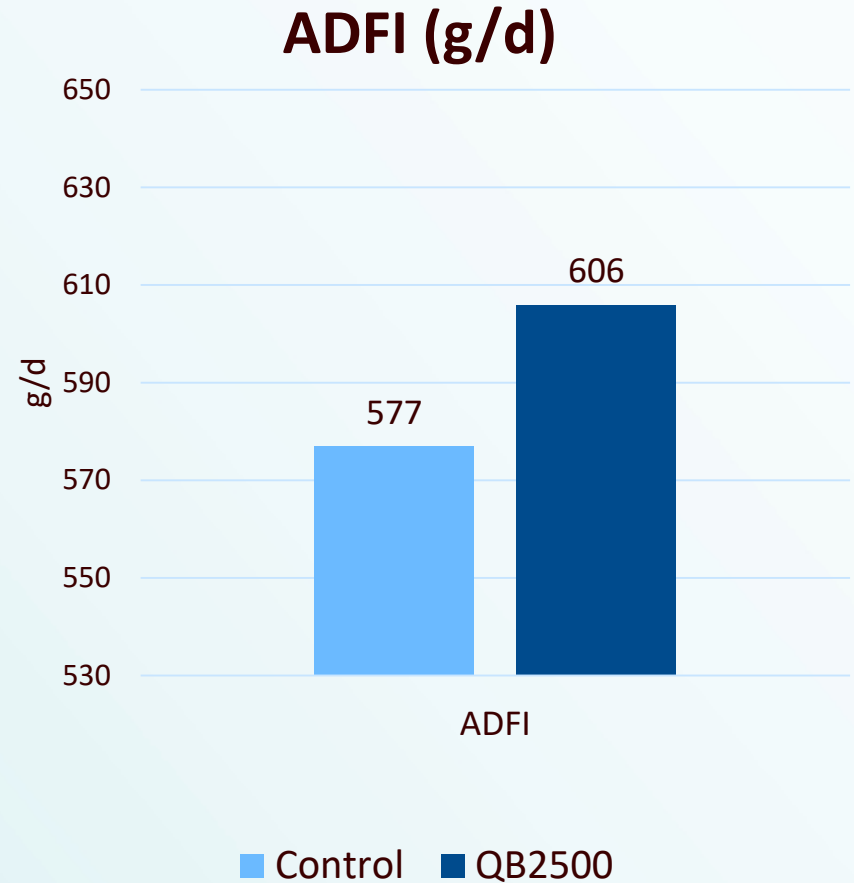
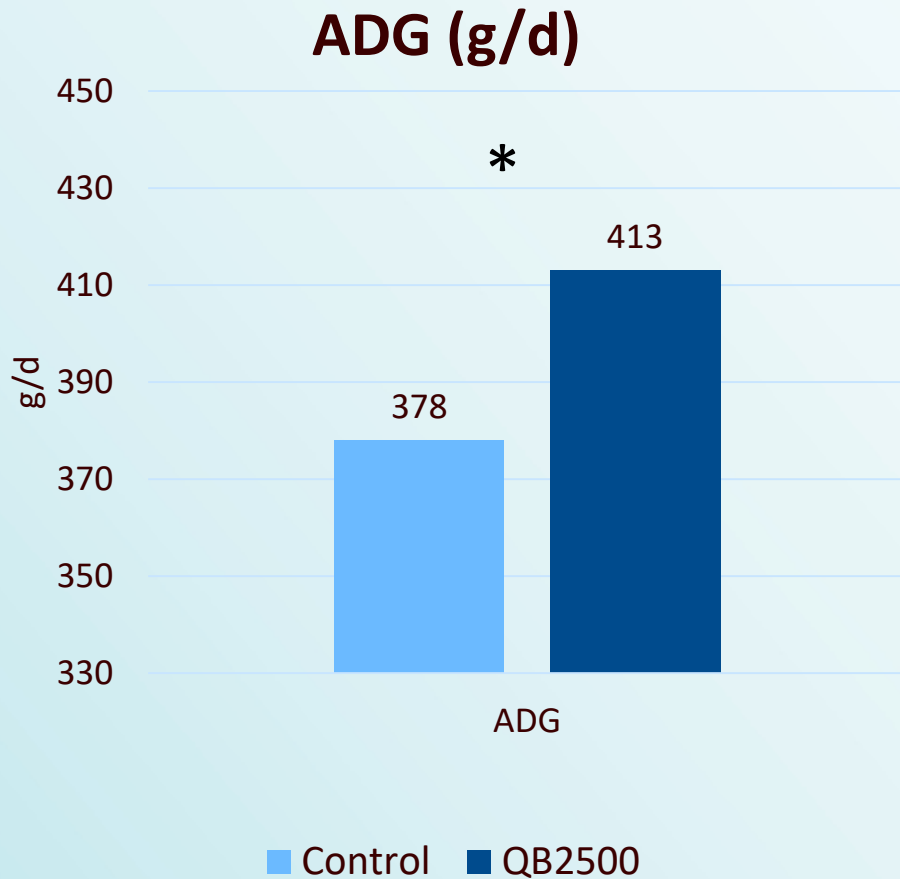
## BODYWEIGHT



\*\* = P < 0.10

# NURSERY PERFORMANCE

(WEAN TO 42 D)



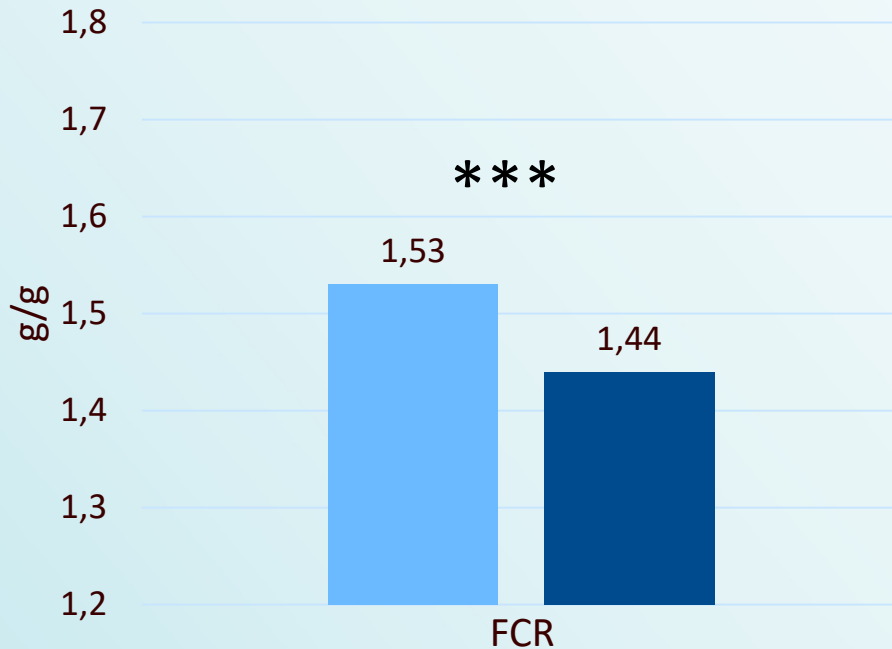
\* = P < 0.15



# NURSERY PERFORMANCE

(WEAN TO 42 D)

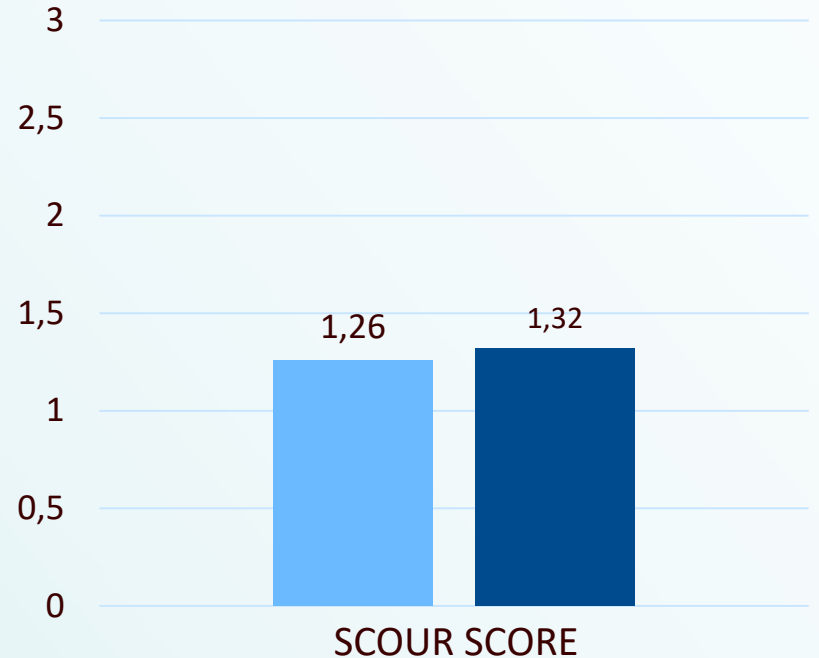
## FCR (g/g) W – 42d



Control QB2500

\*\*\* = P < 0.05

## Scour Score (W – d7)



Control QB2500

1 = normal faeces, 5 = watery diarrhoea

# EXTRA RETURN PER PIG WITH PHYTASE SUPERDOSING

Extra Feed Cost Per Pig (\$)	Extra Gain (kg)	Extra Value (\$1.55 per kg)	Return on Investment
+0.79 <sup>1</sup>	+1.42	+2.20	2.8:1

<sup>1</sup>The extra cost was due to the higher feed cost and intake with superdosing phytase. Note that phytase was added to a nutrient adequate diet, with no P and Ca matrix.

# DISCUSSION

## Phytase superdosing:

1

Tended to improved daily gain (9%)

2

Improved feed conversion efficiency (6 %)

3

Gave a 2.8:1 return on investment

# CONCLUSION

- Phytase **superdosing** improved the performance of weaned piglets fed P-adequate diets, presumably through **destruction** of anti-nutritive phytate

THANK YOU VERY  
MUCH FOR YOUR  
ATTENTION



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