

EFFECT OF THE COMBINATION OF AN IMMUNE MODULATOR AND A NUTRIENT ABSORPTION ENHANCER ON GROWTH PERFORMANCE AND HEALTH OF WEANED PIGLETS

A. Desbruslais¹, J. Aka¹, [P. Bukowska](#)¹, R. Neto¹, D. Gonzalez Sanchez¹, A. Hermes²

¹KEMIN Europa nv, Toekomstlaan 42, 2200 Herentals, Belgium,
Paulina.Bukowska@kemin.com

²GS agri eG, Germany

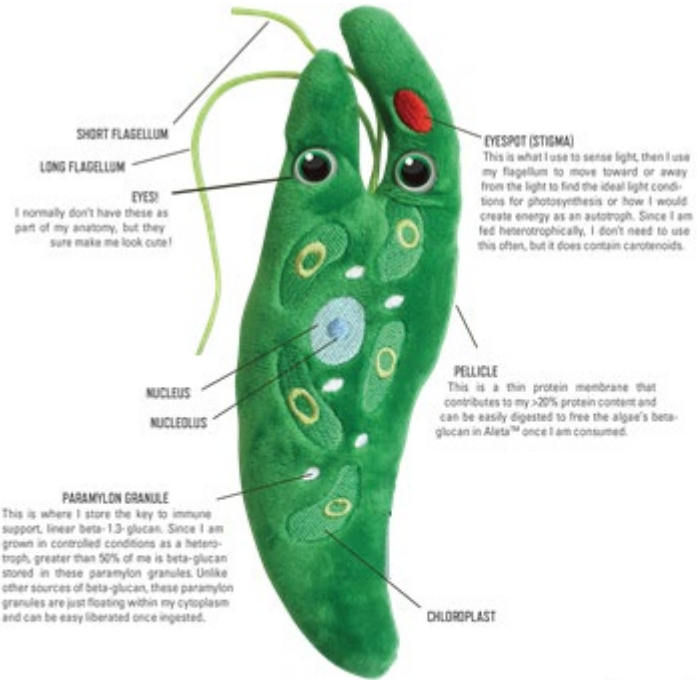
EFFECT OF ALGAL BETA-1,3-GLUCAN IMMUNE MODULATOR AND NUTRIENT ABSORPTION ENHANCER SUPPLEMENTATION ON THE GROWTH PERFORMANCE AND IMMUNE DEFENCE OF WEANING PIGS (6.5-25 KG)

Nutrition and health are related and it has been widely shown that failure to take both factors reduces animal performance

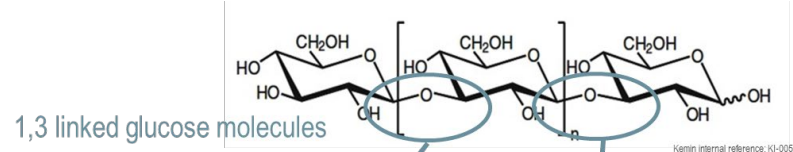
- 1. Fats and oils** are a concentrated source of energy: digesting fiber. Increasing the level of added fat in the diet will increase the energy available to the pig for growth, maintenance and reproduction.
- 2. Absorption enhancers** are molecules that can reduce the volume of large fat droplets into smaller, more numerous droplets, thus increasing the surface area available for lipase and bile salt attachment while improving the action of endogenous enzymes for an enhanced total nutrient absorption. The use of absorption enhancers in commercial swine diets is increasing, with the main aim of improving income over feed cost and production profitability.
- 3. β -glucans** belong to a group of pathogen-related molecules that are recognized by receptors on the surface of the immune system's cells, forming the basis of the immune system and guaranteeing a response against pathogens.

WHY?

Research shows beta-(1,3)(1,6)-glucans = immune modulating

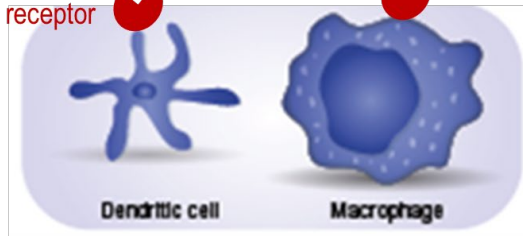


A new source of beta-glucans:



Only 1,3 linked glucose oligomers can bind Dectin-1 receptor on immune cells

Dectin-1 receptor



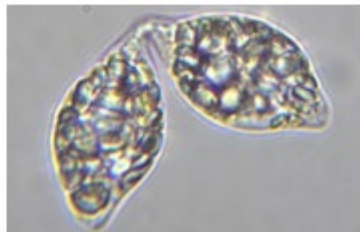
Antigen presenting cells

Immune modulation

Immune modulating



Euglena Gracilis Algae

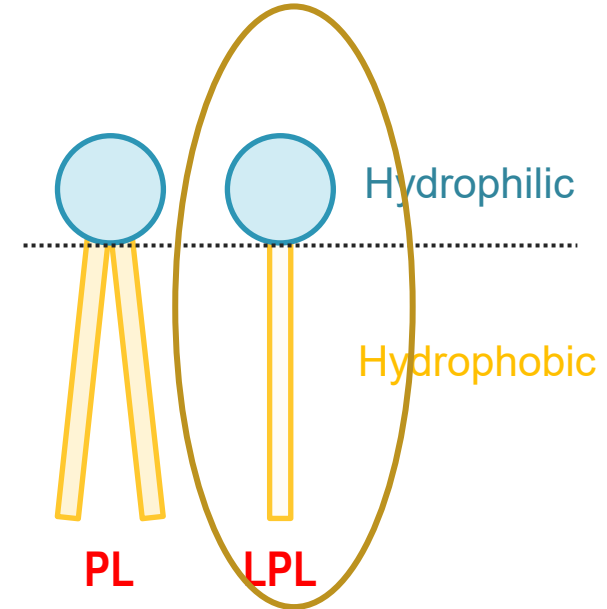
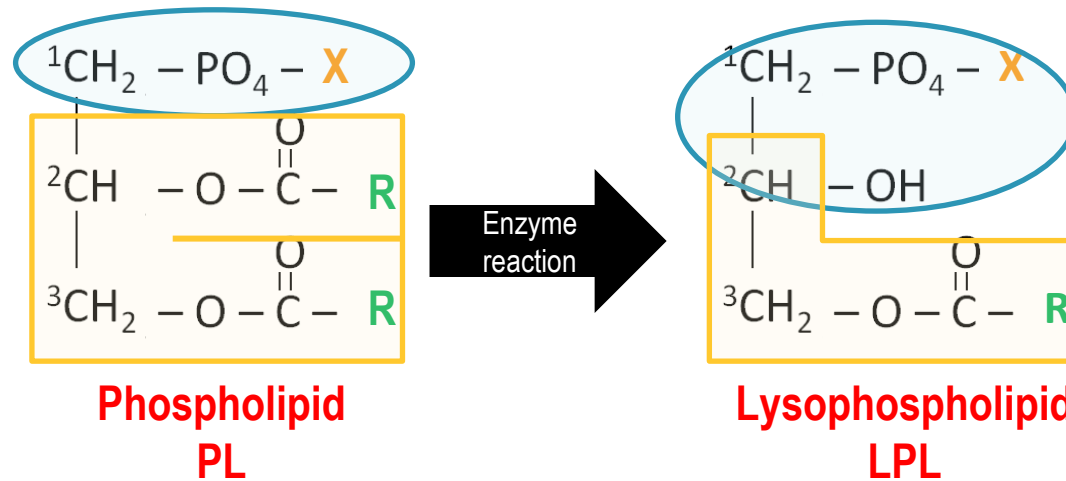


WHY ?

LYSOFORTE® functions as absorption enhancer in different ways:

1. Improves fat emulsification, hydrolysis and absorption
2. Removing the fat matrix thus increasing the accessibility of nutrients
3. Improves absorption of nutrients

- Lecithin – is both hydrophilic and hydrophobic (amphipathic), allowing oil to mix with water
- Conversion of Lecithin to Lysolecithin improves its emulsifying ability, decrease size of emulsion droplets and micelles and allows for more penetration and permeability through the cell membrane – improved absorption



X = Phosphatidyl substituent
(choline, ethanolamine, inositol, acid)

R = Fatty acid carbon chain

EFFECT OF ALGAL BETA-1,3-GLUCAN IMMUNE MODULATOR AND NUTRIENT ABSORPTION ENHANCER SUPPLEMENTATION ON THE GROWTH PERFORMANCE AND IMMUNE DEFENCE OF WEANING PIGS (6.5-25 KG)

1. How do weaned **piglets** **respond to** Aleta™ and LYSOFORTE® EXTEND supplementation throughout the weaning period?
2. Does Aleta™ and LYSOFORTE® EXTEND supplementation affect the **growth** of weaned piglets?
3. Does Aleta™ and LYSOFORTE® EXTEND supplementation affect the **feed conversion efficiency** of weaned piglets ?

This trial considers the response of 1564 weaned piglets to 2 dietary treatments fed over 2 phases (FAZ 1 and FAZ 2) for 7 weeks.

Visual Representation of dietary Treatments

Treatment	Number per pen	Pens per treatment	Gender	Diet code	Additive
1	17	44	M+F	Control	Lecithin, 1 kg in the first phase
2	17	44	M+F	Treatment	500 g/t LYSOFORTE® EXTEND Aleta™ 200 g/t

EFFECT OF ALGAL BETA-1,3-GLUCAN AND NUTRIENT ABSORPTION ENHANCER SUPPLEMENTATION ON THE GROWTH PERFORMANCE AND IMMUNE DEFENCE OF WEANING PIGS (6.5-25 KG)

Measurements	Control	Treatment
Animal, n	760	767
Weight at start, kg	6,34	6,38
Final weight, kg	28,72	29,15
Mortality, n	19	15
ADG, g	456	463
FCR, 1:	1,44	1,42

p<0,05

CONCLUSION

The use of an **algal Beta-1,3-Glucan immune modulator** in combination with a **nutrient absorption enhancer** proved to be effective in **improving feed efficiency and health status** of weaned piglets.

Effect of the combination of an immune modulator and a nutrient absorption enhancer on growth performance and health of weaned piglets

A. Desbruslals¹, J. Aka¹, P. Bukowska¹, R. Neto¹, D. Gonzalez Sanchez¹, A. Hermes²
¹KEMIN Europe nv, Tolkomstraat 42, 2200 Hermsela, Belgium, Paola.Bukowska@kemin.com
²GS agrifood, Germany

Introduction

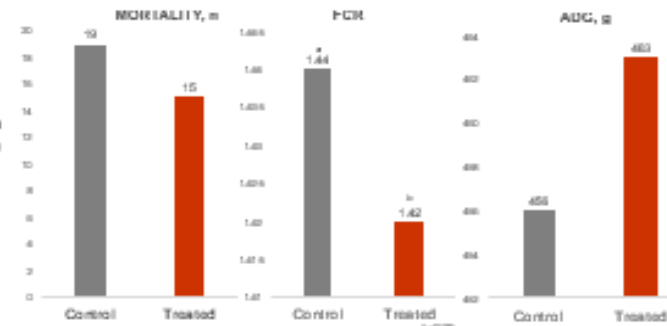
Nutrition and health are related and it has been widely shown that failure to take both factors reduces animal performance. Fats and oils are a concentrated source of energy. Increasing the level of added fat in the diet will increase the energy available to the pig for growth, maintenance and reproduction. Increasing the availability of energy in the diet is of great interest to commercial nutritionists. Emulsifiers are molecules that can reduce the volume of large fat droplets into smaller, more numerous droplets, thus increasing the surface area available for lipase and bile salt attachment. The use of emulsifiers in the pig industry is increasing, and synthetic emulsifiers, lecithins and lyso-lecthins are commonly added to the diet. β -glucans belong to a group of pathogen-related molecules that are recognized by receptors on the surface of the immune cells, forming the basis of the immune system and guaranteeing a response against pathogens. As such, they are typical biological response modifiers with a pronounced and potent immunomodulatory activity, confirmed in many animal experiments and *in vitro* studies. The aim of this study was to evaluate the effects of an algae derived beta-1,3-glucan as an immunomodulator in combination with a synergistic blend of lyso-lecthin, synthetic emulsifier and monoglycerides on piglet health and performance.

Material and Methods

- ✓ Animals: 1564 weaned piglets of 23 days of age of single origin and weighting on average 6.36 kg
- ✓ Treatments: 2 dietary treatments with 23 replicates of 34 piglets each. Feed and water were provided ad libitum throughout the study.
 1. Control group: fed a three-phase postweaning feeding program
 2. Treated group: fed same postweaning feeding program supplemented with an algal Beta-1,3-Glucan (Aleta™, Kemin) in combination with a synergistic blend of lysolecithin, synthetic emulsifier and monoglycerides (LYSOFORTE® EXTEND, Kemin)
- ✓ Duration: 49 days
- ✓ Measurements: growth performance, piglet mortality, removals and their reasons

Results

Over the course of the entire trial, piglets fed the treated diets grew faster and achieved a higher final body weight while significantly using feed more efficiently compared to control. Piglet losses were higher in the control group compared to the treated group.



CONCLUSION

The use of an algal Beta-1,3-Glucan immune modulator in combination with and a nutrient absorption enhancer proved to be effective in improving feed efficiency and health status of weaned piglets.

Check out how we can support your business:
kemin.com/veterinary-solutions



THANK YOU

