Maximise return on your feed through lower costs and increased efficiency

Rising feed costs and volatility of meat prices makes maintaining profitable production challenging for pig producers. This invariably forces them to search for additional ways to optimise production performance at the lowest possible cost.

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With feed representing the majority of production costs, improving feed efficiency, even incrementally, is one of the most effective routes to leverage profitability.

Danbred pig genetics suggest that the reduction of 0.1kg feed/kg of growth of a fattening pig can reduce its total feed requirements by 7.5kg.

However, achieving this is not a simple task due to the multi-factorial nature of feed efficiency. Growing pigs, particularly during early life, can frequently fail to consume sufficient energy from the diet to fully meet their energy requirements, due to social hierarchies, environmental restraints, or inherent physiological constraints.

Optimal efficiency starts with a good feed composition, choosing the best ingredients with a high intrinsic nutritive quality, minimising excess fines, mould contamination and preserving the feed from oxidation risk.

For the supplied nutrients to be fully utilised by the pig, they must first be optimally digested in the intestinal tract and then absorbed by the cells of the intestinal wall.

Most feed additives to improve feed utilisation, have concentrated on either improving nutrient degradation with the use of exogenous enzymes or on enhancing the surface area available for absorption, through optimising the architecture of the gut wall.

However, to fully control this process, one must account for the interactions between nutrients and the various steps of the digestion and absorption process.

The synergistic mode of action of combining lysolecithins, a synthetic emulsifier and monoglycerides as a total nutrient absorption enhancing concept, maximises the bioavailability of energy and other essential nutrients for the pig, while enabling you to reformulate your diet at lower cost, hence delivering substantial increases in production profitability.

Lysolecithins (LLC) have been studied extensively and shown to be highly efficient in improving the digestion of the dietary fat matrix, increasing the availability of apparent metabolisable energy (AME) and essential amino acids. This promotes better weight gain and feed conversion. These effects can be attributed to the ability of LLC to

enhance the emulsification of fats, creating smaller droplet sizes to allow for more efficient lipase activity in the digestive tract.

Additionally, LLC support ion exchanges and thus the fluidity and permeability of the intestinal cell wall membrane and positively impact gut microbiota, integrity and gene expression.

Fat digestion: 3 key steps

Due to the aqueous environment of the gastrointestinal tract, the dietary fat matrix needs to be first optimally emulsified and hydrolysed into fatty acids, which then should be sufficiently absorbed for ensuring the best energy supply to the animal.

In vitro studies show a combination of a synthetic emulsifier, monoglycerides (MG) and lysolecithin provides the most stable emulsion, the highest rate of free fatty acid release and absorption, compared to applying only a lecithin-based solution or single emulsifier (Figs. 1 and 2).

Keeping up high performance standards while reducing costs

Lysoforte Extend is a unique Nutrient Absorption Enhancer (NAE) which combines the benefits of these three active ingredients, lysophospholipids, monoglycerides and a synthetic emulsifier, in a well-defined, synergistic ratio. It is specifically designed to get more potential from your feed, by improving the accessibility of dietary nutrients via enhancing all three essential steps in the digestion of dietary fats and oils.

Promoting this process is particularly important in early rearing, when the gastrointestinal tract is still immature and secretion

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Fig. 1. In vitro study showing a mixture of LLC, monoglycerides and a synthetic emulsifier allows for a more stable emulsion, compared to the single components (Kemin Internal Reference 15-00123).

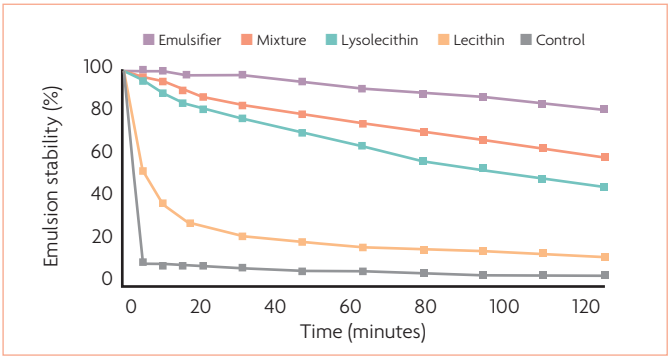
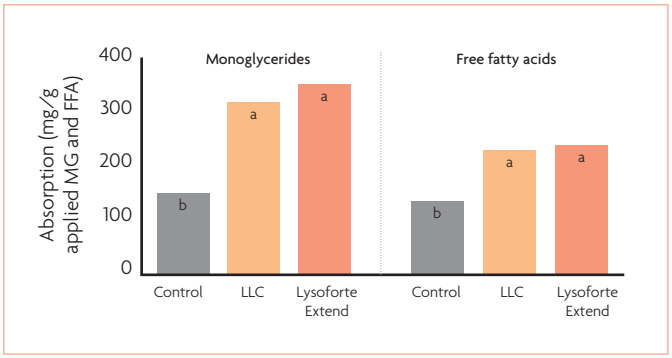


Fig. 2. The mixture of LLC, monoglycerides and a synthetic emulsifier (in red) results in a higher absorption of MG and free fatty acids (FFA) by Caco-2 cells following hydrolysis of animal fat compared to LLC alone or a non-treated control (Kemin Internal Reference 15-00123).



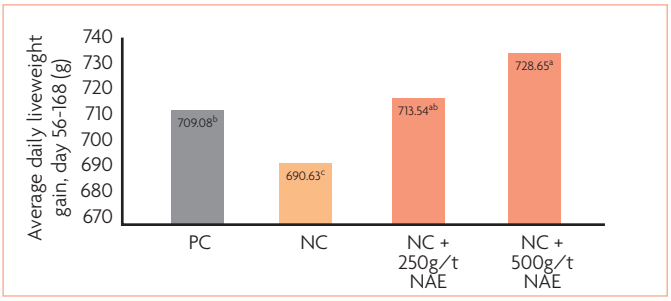


Fig. 3. Effects of Lysoforte Extend on growth rates in growing-finishing pigs (Kemin Internal Reference 19-5713).

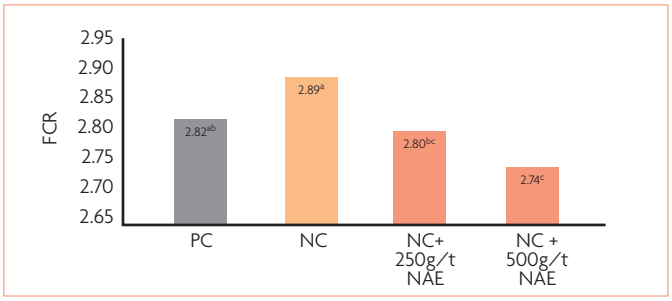


Fig. 4. Effects of Lysoforte Extend on feed conversion efficiency in growing-finishing pigs (Kemin Internal Reference 19-5713).

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of endogenous enzymes and bile salts have not yet reached their maximum level to optimally contribute for maximum growth.

Applying this NAE during growing and fattening using a well-proven matrix, enables diet reformulation, reducing crude protein and crude fat content, resulting in significant cost savings, while still achieving optimal production results.

A four month study using 360 pigs assessed the benefit of Lysoforte Extend at two different dosages in a reformulated diet (-100 kcal ME) on amino acid digestibility and growth performance.

Results demonstrated that at both 250 and 500g/t inclusion rate in feed, Lysoforte Extend was able to mitigate the effect of reducing the ME by 100 kcal on daily weight gain (Fig. 3) and significantly improved the cumulative FCR (Fig. 4) compared to non-supplementing, non-reformulating the diet.

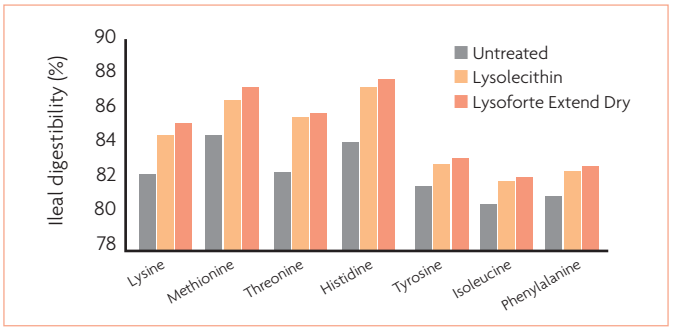

Fig. 5. Effects of Lysoforte Extend on amino acid digestibility (Kemin Internal Reference 19-5713).

The results of this study show that supplementing a pig feed with Lysoforte Extend can improve the digestibility of key amino acids compared to feeding only lysolecithin or not supplementing the diet at all, supporting a more efficient nutrient uptake (Fig. 5).

In summary, when looking for a new angle to manage feed costs and maintain business profitability, choosing a complete approach which supports emulsification, hydrolysis and absorption of dietary nutrients through one concept offers an efficient, innovative and economically beneficial strategy. ■

References are available from the author on request