



Kerry AlphaGal™ Research Summary

The Challenge

Non-starch polysaccharides (NSP) present in feed ingredients negatively affect the nutritional value and digestibility of poultry diets. Furthermore, non-digestible fractions of polysaccharides other than arabinoxylans and β -glucans can heighten these detrimental effects on the digestibility and nutrient release from various raw materials. Oligosaccharides from soybean meal (SBM), quantified as 7-10% (DM basis), can go undigested and cause negative effects due to the lack of specific enzymes to hydrolyze them within the animal gastrointestinal tract. Kerry AlphaGal™, a multicomponent enzyme, can target both the oligosaccharides and other NSP in the diet, therefore releasing additional value to the feed.

Figure 1. Structure of soy oligosaccharides and bonds susceptible to the specific activity of alpha-galactosidase enzyme

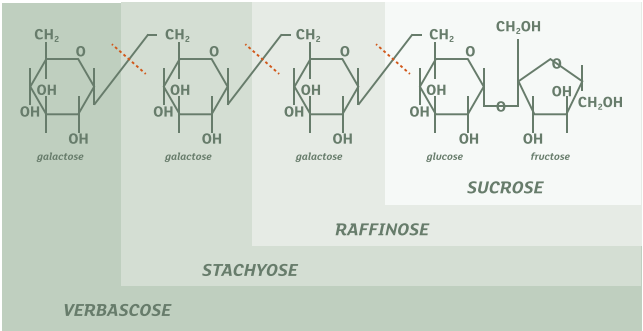


Table 1. Galacto-oligosaccharide content in various raw materials used in monogastric feed

% (DM)	Raffinose	Stachyose	Verbascose	Total OS
Corn	0.2	0.1	n/a	2.0
Soybean	0.2	5.2	0	7.1
DDGS	0.2	0	n/a	0.2
Wheat	0.4	0.2	n/a	1.9
Canola	0.2	0	n/a	0.2
Beans	0.4	1.6	3.4	5.4



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Our Solution

Kerry AlphaGal™ Enzyme Helps

- Maximize the nutritive value of poultry diets
- Reduce the effect of anti-nutritional factors in poultry diets
- Improve feed digestibility by sparing more energy and amino acids
- Decrease feed cost and improves overall profitability of animal production

Peer Reviewed Results

Elevate Dietary Metabolizable Energy (ME) & Processing Yields

The detrimental effects of reduced dietary ME on broiler growth performance and processing yields can be ameliorated with Kerry AlphaGal™ (Fig. 2). Furthermore, Kerry AlphaGal™ can improve the humoral immunity of broilers in response to vaccination (Fig. 3), and may play a role in supporting immunity when dietary energy is in short supply. Kerry AlphaGal™ also supported an improvement in processing yields on broilers at 35-days of age (Fig. 4).

Llamas-Moya et al., 2019 <https://doi.org/10.1016/j.japr.2019.10.001>

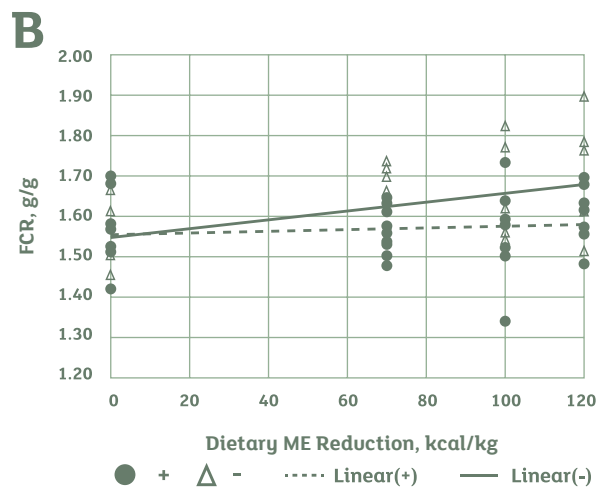
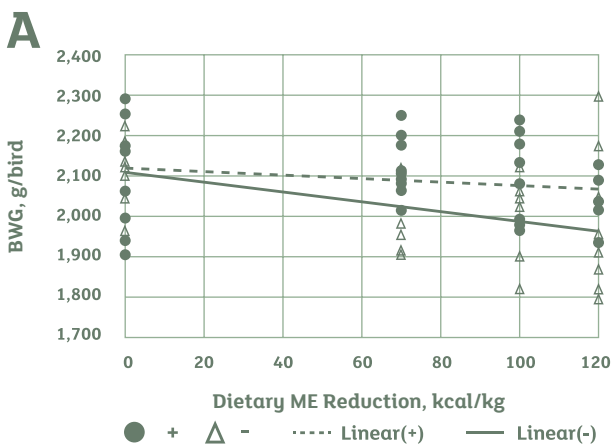


Figure 2. Effect of Kerry AlphaGal™ (+ or -) on linear regression of (A) body weight gain and (B) feed conversion ratio associated with reduced dietary ME level in broiler chickens for a period of 35d

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Peer Reviewed Results

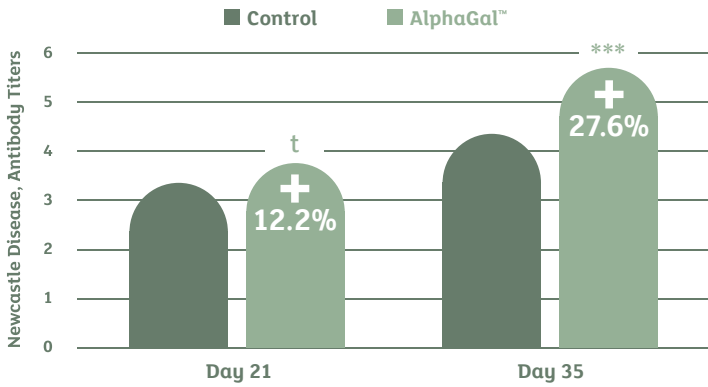


Figure 3. Effect of Kerry AlphaGal™ on the humoral immunity of broilers after immunization against Newcastle disease (t: $P < 0.1$; ***: $P < 0.001$)

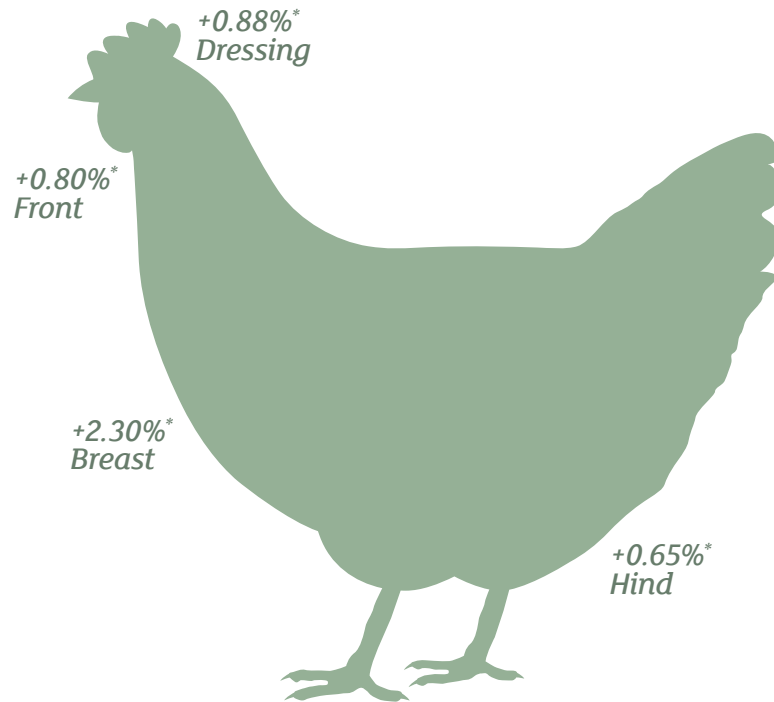


Figure 4. Effect of Kerry AlphaGal™ on the processing yields of broilers at 35-d of age (*: $P < 0.05$)



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Improve Ileal Nutrient Availability & Amino Acid Digestibility

The inclusion of Kerry AlphaGal™ in broiler diets improves ileal nutrient availability (Fig. 5), and increases specific ileal amino acid digestibility (Fig. 6).

Jasek et al., 2018 - <https://doi.org/10.3382/ps/pey193>

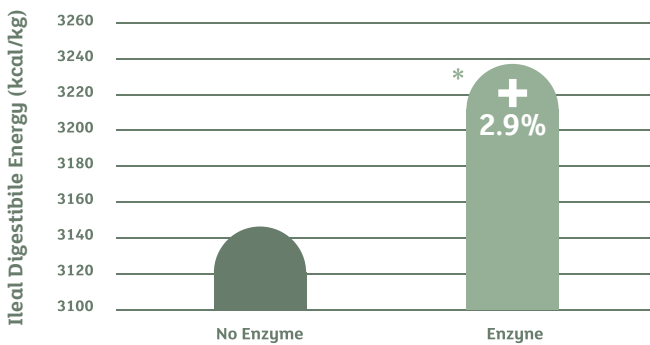


Figure 5. Effect of Kerry AlphaGal™ on ileal digestible energy (IDE) content in male broilers fed a corn-SBM diet

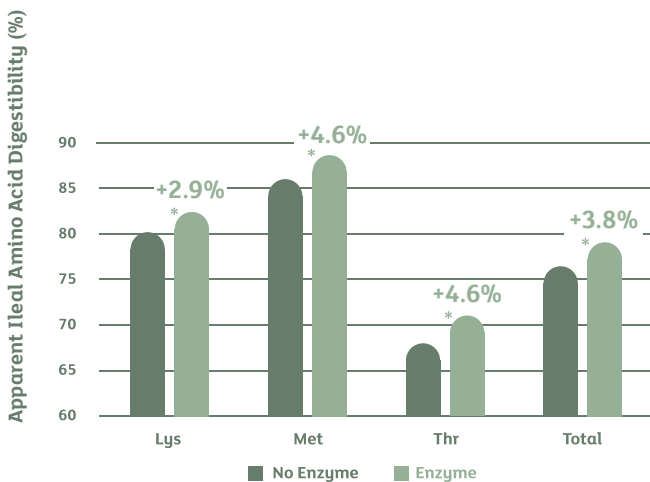
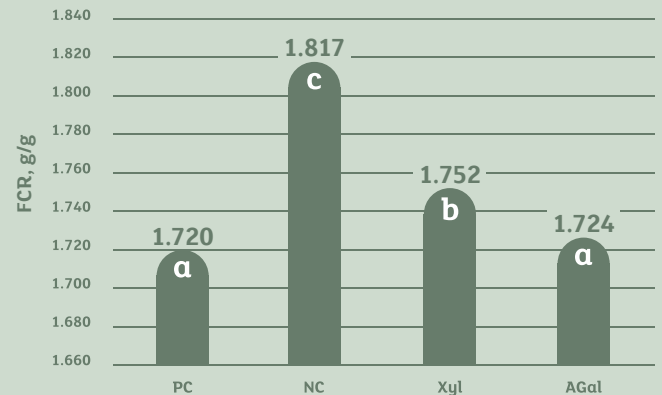


Figure 6. Effect of Kerry AlphaGal™ (+ or -) on apparent ileal lysine, methionine, threonine and total amino acid digestibility (%) of male broilers (*: $P < 0.05$)

Studies with Kerry AlphaGal™ have demonstrated that this multi-carbohydrase enzyme can unlock more value from feed, yielding additional improvements in feed efficiency when compared to single component xylanase enzymes.

Three Kerry internal studies at independent research facility

The broad-spectrum range of activities present in Kerry AlphaGal™ likely maximize the potential for nutrient release, by engaging with multiple substrates of varying composition and structure present in typical poultry diets.



Effect of Kerry AlphaGal™ in the feed conversion ratio (FCR) of broilers fed a low energy density diet (NC = PC-100 kcal ME/kg feed) over a 42-day period. (a-c: means with different superscripts denote significant statistical differences at $P < 0.05$)

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Kerry AlphaGal™ enzymes help more than 8 billion birds annually improve nutrient digestibility along with an associated reduction in feed cost. Find the form that best meets your business needs.

Product	Form	Recommended Use
180P	Powder	Feed in mash/meal form
280P	Encapsulated Powder	For challenging pelleting conditions (<87°C or 190°F)
180Pc/280Pc	Concentrated Powder/Encapsulate	Premix application
280Lc	Liquid	For challenging pelleting conditions (>87°C or 190°F)