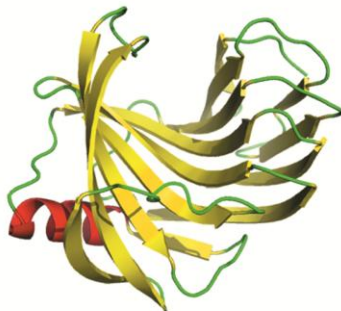


Xylanase and β -glucanase gave better performance and digestibility compared to xylanase alone in broilers fed corn/soy-based diets

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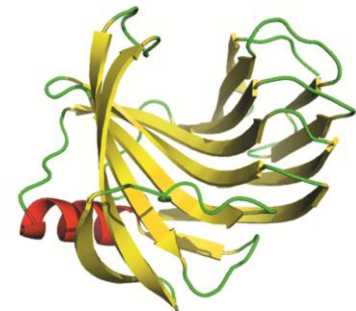


Introduction

- The increased use of fibrous by-products in broiler diets increased the interest in the use of carbohydrases in corn based diets
- Most studies examined xylanase or a combination of xylanase, amylase and protease
- Recent studies showed positive effect of β -glucanase in corn based diets (Leslie et al., 2007; Cowieson et al., 2010; Yegani and Korver, 2013)
- Limited studies examined the added value of β -glucanase on top of xylanase on broiler performance and nutrient digestibility

Objective

To evaluate the effect of xylanase or enzyme combination (xylanase and β -glucanase) on the performance and nutrient digestibility of broilers fed corn/soy-based diets



Materials and Methods

	Performance	Digestibility
Breed	Ross 308	Ross 308
Duration	42-d	21-d
Replicates	8 pens	8 cages
Birds per replicate	20	8

- 3 dietary treatments
 - Control diet based on corn/soybean meal
 - Control + xylanase (1500U xylanase/kg of feed)
 - Control + enzyme combination (1220U xylanase and 152U β -glucanase/kg of feed)
- Phytase (500 FTU/kg diet) was included in all diets

Diets: (kg/tonne) as fed

	Starter (1–21 days)	Grower-finisher (21–42 days)
Corn	521	481
Corn DDGS	150	200
Soybean meal 48%CP	231	153
Rapeseed meal	50	100

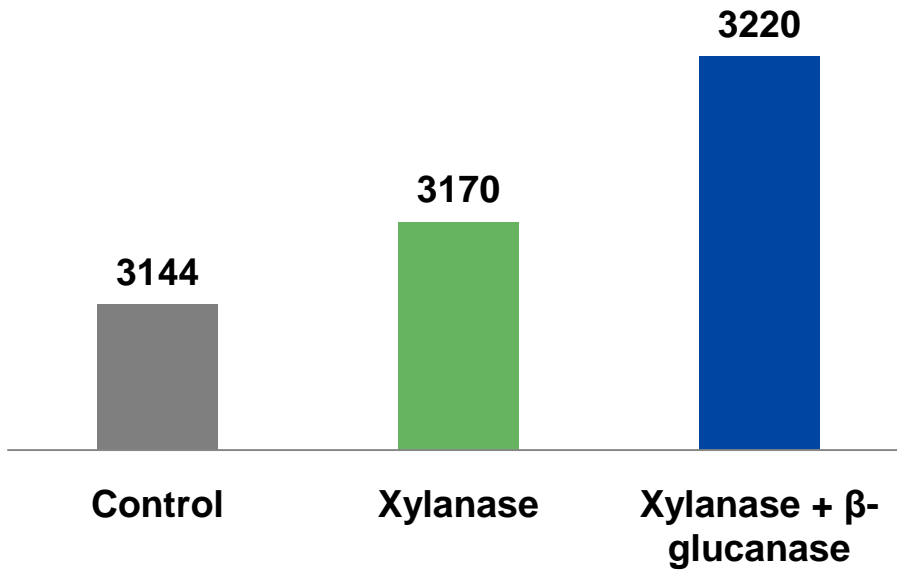
Performance results 42 days



	Control	Xylanase	Xylanase + β -glucanase	P-value
1-21 days				
Weight gain (g)	1001 ^b	996 ^b	1027 ^a	0.54
Feed intake (g)	1330	1311	1337	0.04
FCR	1.34	1.32	1.31	0.13
21-42 days				
Weight gain (g)	2144	2174	2193	0.37
Feed intake (g)	3964	3951	3999	0.72
FCR	1.85	1.82	1.82	0.35

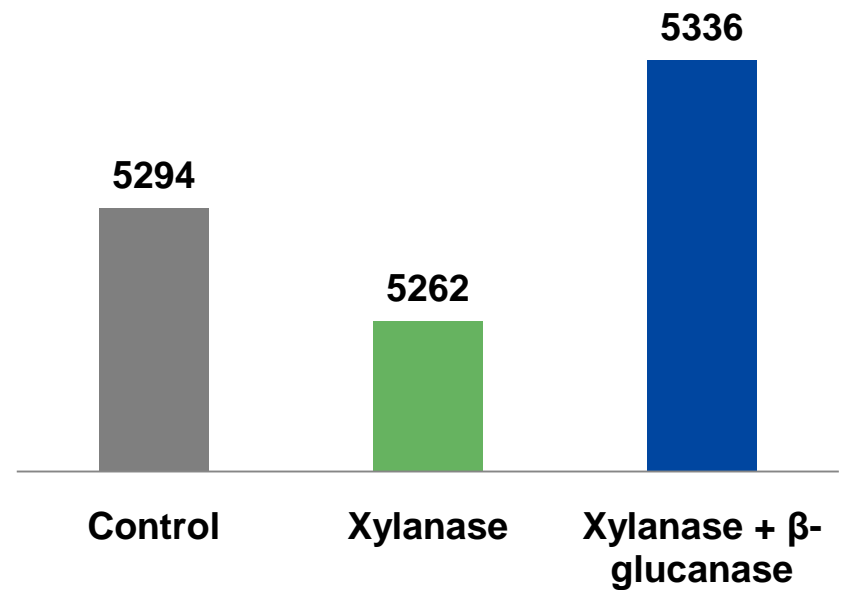
Performance (1-42 days)

Bodyweight gain (g)



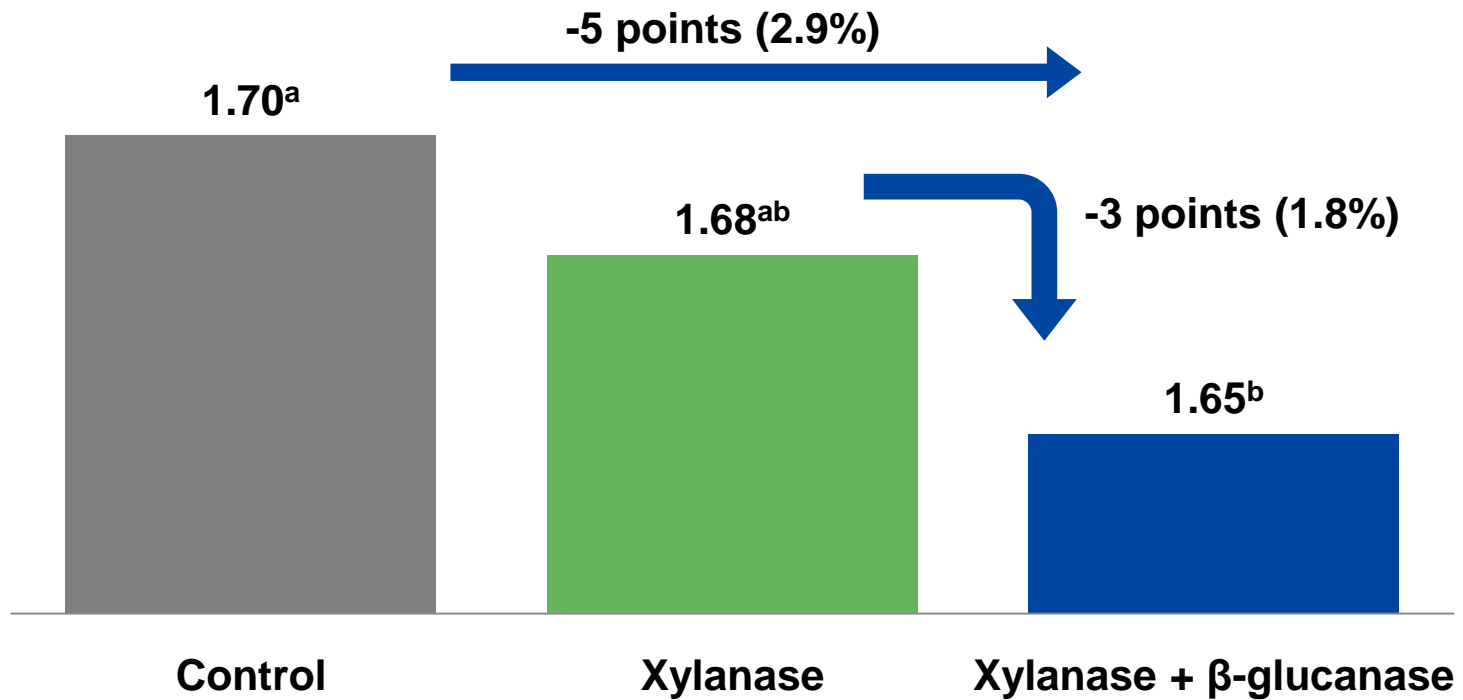
P>0.05

Feed intake (g)



P>0.05

Bodyweight corrected FCR* (1-42 days)



^{ab} Values without a common superscript are significantly different (**P<0.05**)

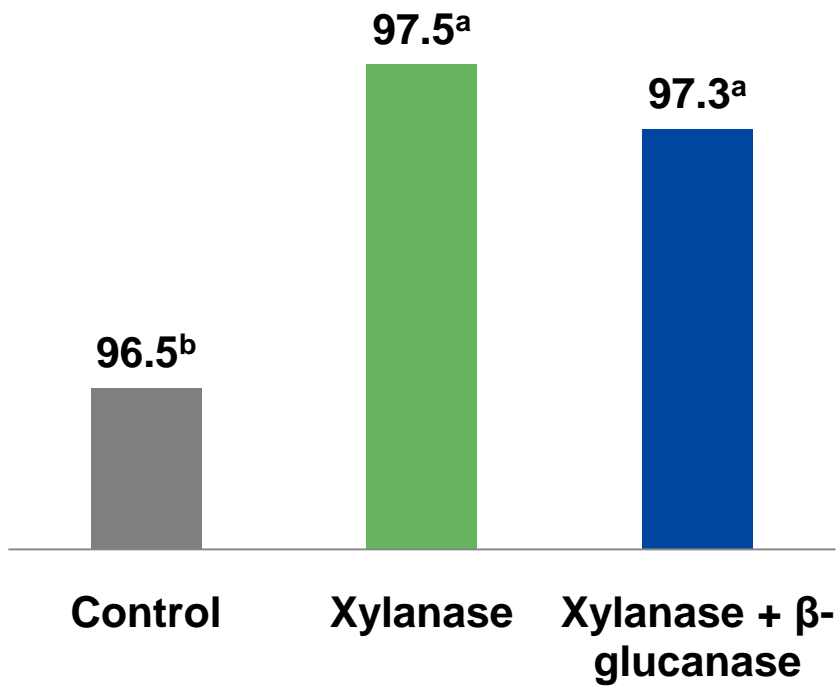
*corrected 3 points for every 100g difference in bodyweight compared to control.

Ileal nutrient digestibility 21 days



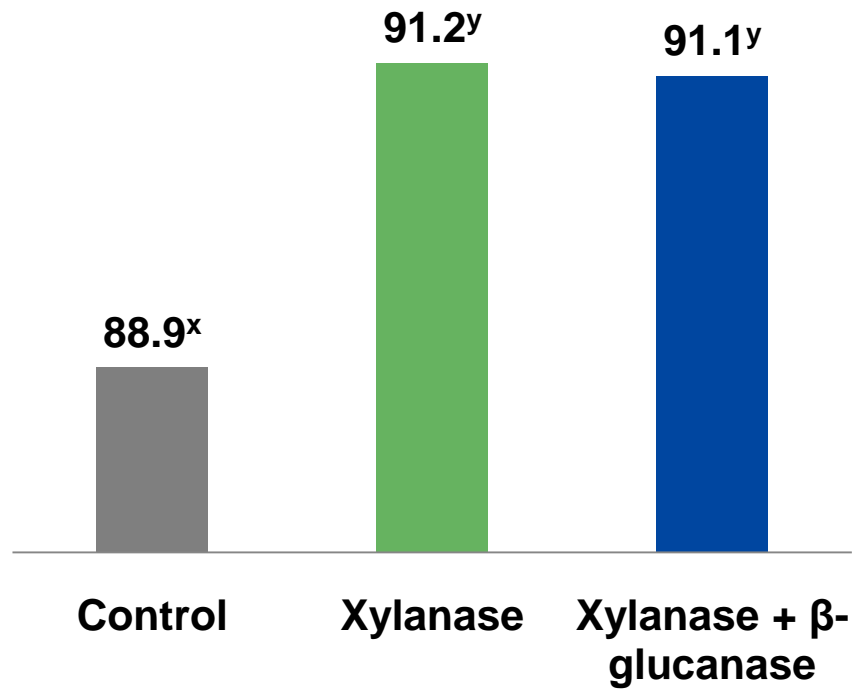
Ileal digestibility - 21 days

Starch digestibility (%)



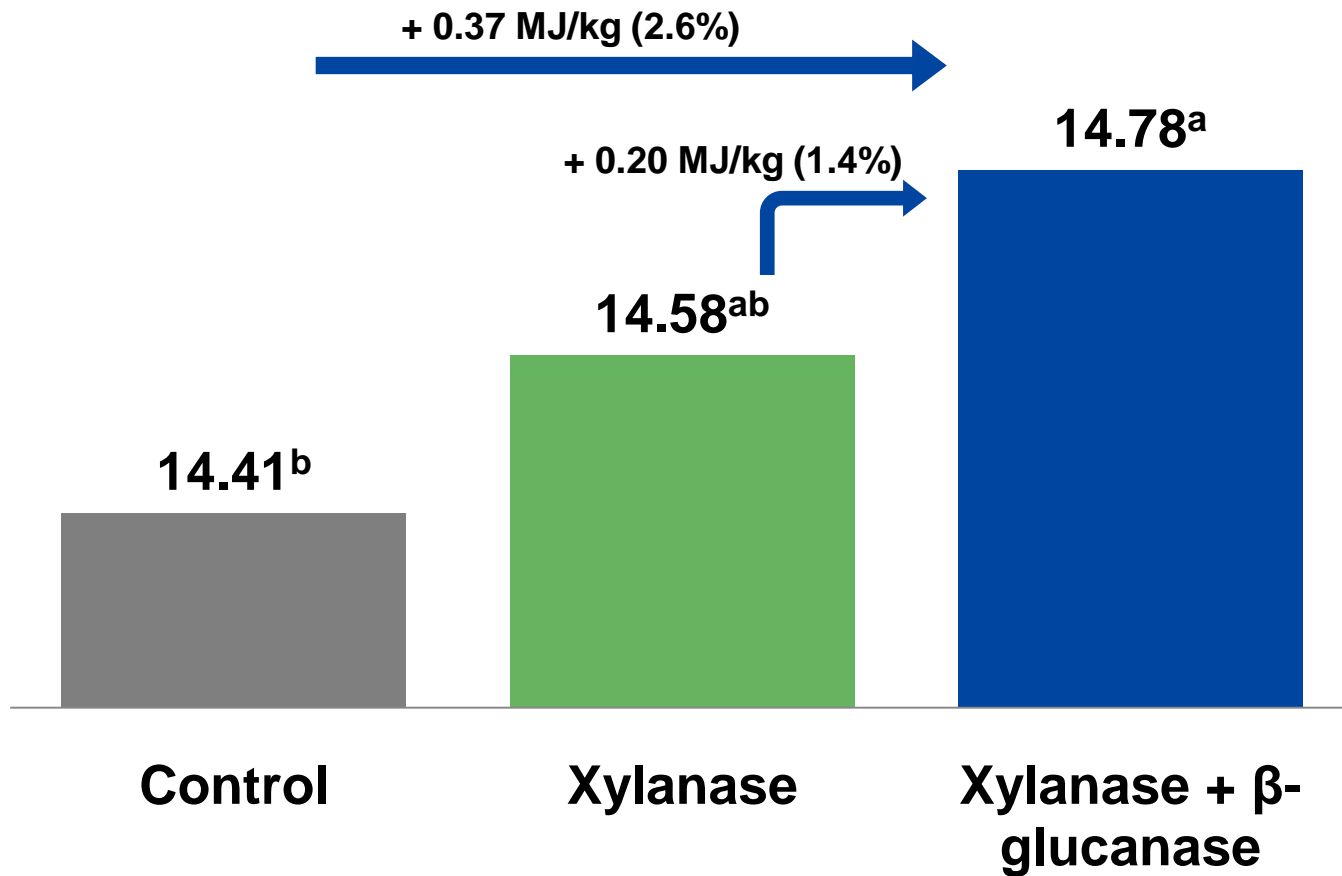
P<0.05

Fat digestibility (%)



P=0.05

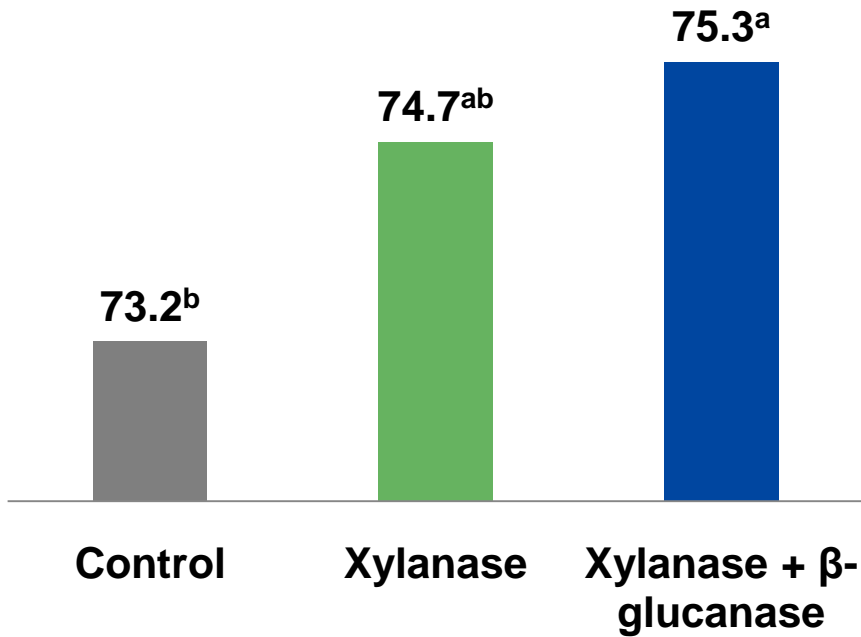
Apparent ileal digestible energy (MJ/kg dry matter)



P<0.05

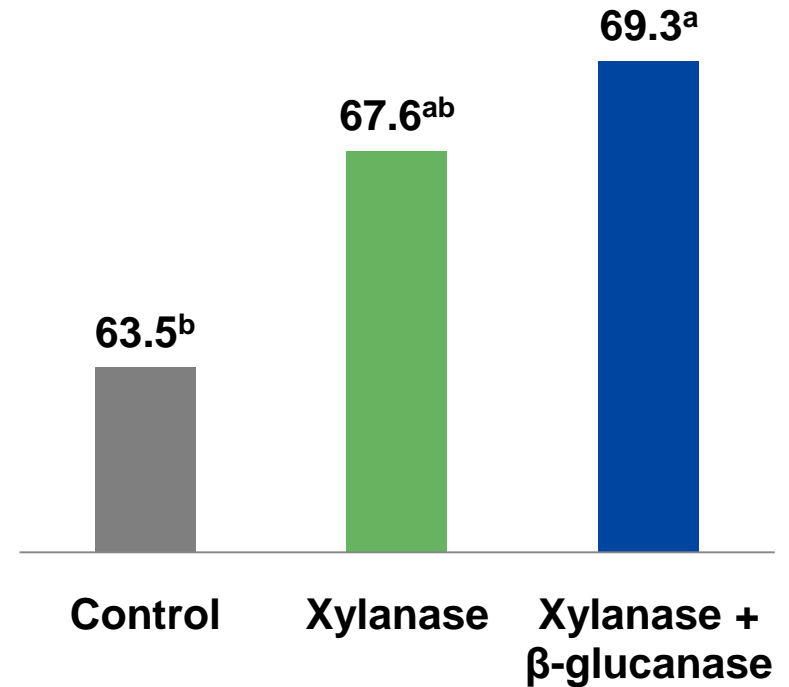
Ileal digestibility - 21 days

Dry matter digestibility (%)



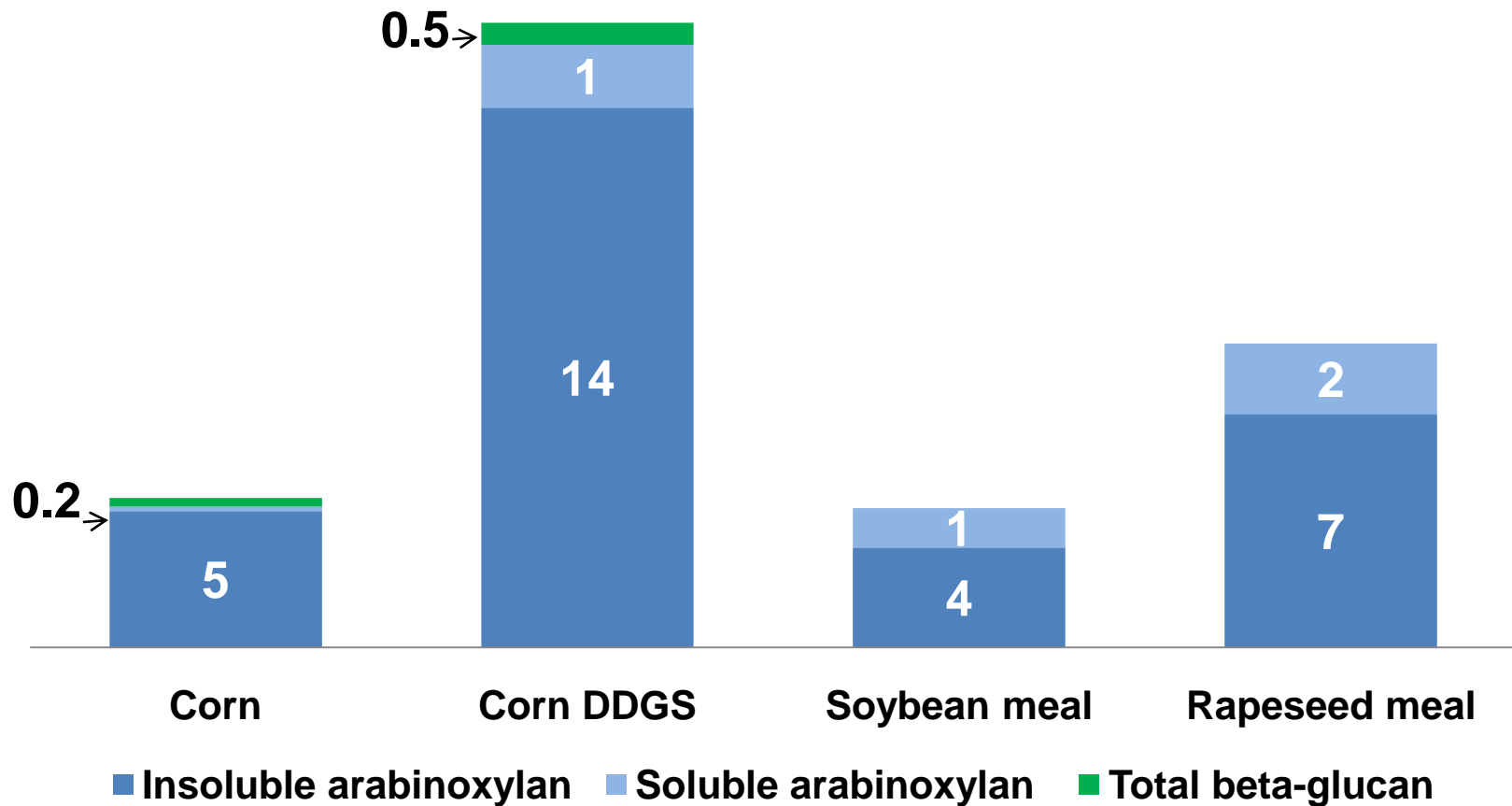
P<0.05

Ash digestibility (%)



P<0.05

Arabinoxylan and beta-glucan in some feed ingredients (% dry matter)



Source: Danisco Non Starch Polysaccharide (NSP) database (2012)

Conclusions

- Combination of xylanase and β -glucanase resulted in better performance and IDE than xylanase alone in broilers fed corn/soy-based diets
- Further studies are required to understand the mechanisms of action of the combination of xylanase and β -glucanase in corn-soy diets in broiler chickens



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