

Amino acid digestibility of corn distillers solubles-related co-products in growing pigs

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The solubles component of distillers dried grains with solubles (DDGS) may contribute to the low and variable digestibility of lysine and other AA. Combining solubles and grains sometimes produces “syrup balls” and their digestibility is unknown. The objective of this experiment was to determine apparent and standardized ileal AA digestibility of corn distillers solubles co-products and to determine if the presence of syrup balls in DDGS impacts AA digestibility. The ingredients evaluated were DDGS, intact syrup balls (ISB), ground syrup balls (GSB), condensed solubles (CS), and spray dried thin stillage (SDTS) obtained from the same ethanol plant. Condensed solubles is produced by evaporation of thin stillage (TS). These ingredients were used as the only source of AA in the experimental diets. In a duplicate 6 x 6 latin square with 7-d periods, the 6 treatments consisted of a N-free diet and 5 test ingredients. Pigs had 5-d of adaptation to each diet, and on d 6 and 7, ileal digesta were collected from the distal part of the ileum for 8 h. The AA digestibility of GSB and ISB were equal or higher than that of DDGS (Table 1). Digestibility of CS was lower than that of DDGS for total essential AA (EAA) but not for lysine. The TS had the lowest AA digestibility, perhaps due to heat damage during spray drying. In conclusion, the presence of syrup balls does not decrease AA digestibility of DDGS and the CS evaluated has EAA digestibility lower than DDGS.

Key words: corn distillers solubles, growing pigs, AA digestibility

Table 1. Lysine digestibility in the diets¹

Item	Diet					SEM
	DDGS	ISB	GSB	CS	SDTS	
Lysine						
AID ²	59.80 ^y	69.93 ^x	68.82 ^x	61.03 ^y	39.13 ^z	3.10
SID ³	60.62 ^y	70.75 ^x	69.64 ^{x,z}	63.08 ^{y,z}	39.95 ^w	3.09
Total essential AA						
AID	73.53 ^x	75.86 ^x	75.75 ^x	57.20 ^y	51.35 ^z	2.02
SID	75.87 ^x	78.20 ^x	78.09 ^x	61.53 ^y	53.69 ^z	2.01

¹Means within a row without a common superscript differ ($P < 0.05$).

²Apparent ileal digestibility.

³Standardized ileal digestibility.